Network Video Decoder

User Manual

V3.4.5

Foreword

General

This manual introduces the installation, functions and operations of the network video decoder (hereinafter referred to as the "Decoder" or "Device"). Read carefully before using the device, and keep the manual safe for future reference.

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
TIPS	Provides methods to help you solve a problem or save time.
NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V3.4.5	• Add chapters including quick operation panel and connecting to third-party central control devices. • Delete old models.	March 2025
V3.4.4	Add new series.	May 2024
V3.4.3	Update device images.	December 2023
V3.4.2	Add new series.	July 2023
V3.4.1	Update device image.	February 2023
V3.4.0	Add new series.	November 2022
V3.3.0	• Add new series. • Add new functions.	June 2022
V3.2.0	• Add new series. • Update important safeguards and warnings.	September 2021

Version	Revision Content	Release Time
V3.1.0	• Add new series. • Delete function about audio.	June 2021
V3.0.0	Baseline revision.	November 2019
V2.0.0	Baseline revision.	March 2019
V1.0.0	First release.	June 2018

Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, audio, fingerprints, and license plate number. You need to be in compliance with your local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.
- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Important Safeguards and Warnings

This section introduces content covering the proper handling of the device, hazard prevention, and prevention of property damage. Read carefully before using the device, and comply with the guidelines when using it.

Transportation Requirements

Transport the device under allowed humidity and temperature conditions.

Storage Requirements

Store the device under allowed humidity and temperature conditions.

Installation Requirements

-  Electrical Hazard

  Preventive measures: Make sure the power is off when you put your hand into the device.
- Stability Hazard

  Possible result: The rack might fall down and cause serious personal injury.

  Preventive measures (including but not limited to):

  - Before extending the rack to the installation position, read the installation instructions.
  - When the Device is installed on the slide rail, do not place any load on it.
  - Do not retract the slide rail while the Device is installed on it.

-  Rotating Fan Blades Hazard

  Avoid touching the fan blades, especially when they are moving.
-  Before installation, disconnect all the power cords.
- Do not connect the power adapter to the device while the adapter is powered on.
- Strictly comply with the local electric safety code and standards. Make sure the ambient voltage is stable and meets the power supply requirements of the device.
- Do not connect the device to two or more kinds of power supplies, to avoid damage to the device.
- Replace unwanted batteries with new batteries of the same type and model. Replace unwanted batteries with new batteries of the same type and model to avoid the risk of fire and explosion. Dispose of the old batteries as instructed.

- Do not expose the battery to extremely hot environments, such as direct sunlight and fire, to avoid the risk of fire and explosion.

- The device must be installed in a location that only professionals can access. Non-professionals are not allowed to enter the installation area.
- Personnel working at heights must take all necessary measures to ensure personal safety including wearing a helmet and safety belts.
- Do not place the device in a place exposed to sunlight or near heat sources.
- Keep the device away from dampness, dust, and soot.
- To ensure heat dissipation, the gap between the device and the surrounding area should not be less than 10 cm on the sides and 5 cm on top of the device.
- Install the device on a stable surface to prevent it from falling.
- Use an adapter or cabinet power supply provided by the manufacturer.
- Please follow the electrical requirements to power the device.
  - Following are the requirements for selecting a power adapter.
    - The power supply must conform to the requirements of IEC 60950-1 and IEC 62368-1 standards.
    - The voltage must meet the SELV (Safety Extra Low Voltage) requirements and not exceed ES-1 standards.
    - When the power of the device does not exceed 100 W, the power supply must meet LPS requirements and be no higher than PS2.
  - We recommend using the power adapter provided with the device.
  - When selecting the power adapter, the power supply requirements (such as rated voltage) are subject to the device label.
- The device is a class I electrical appliance. Make sure that the power supply of the device is connected to a power socket with protective earthing.
- Use the power cords that are recommended for the region and conform to the rated power specifications.
- When installing the device, make sure that the power plug and appliance coupler can be easily reached to cut off power.
- The appliance coupler is a disconnection device. Keep it at a convenient angle when using it.
- A safety circuit breaker is designed on the device panel to cut the power of the device. Make sure the breaker can be easily operated during installation.

Operation Requirements

-  The Device or remote control contains button batteries. Do not swallow the batteries due to the risk of chemical burns.

  Possible result: The swallowed button battery can cause serious internal burns and death within 2 hours.

  Preventive measures (including but not limited to):

  - Keep new and used batteries out of reach of children.
  - If the battery compartment is not securely closed, stop using the product immediately and keep out of reach of children.
  - Seek immediate medical attention if a battery is believed to be swallowed or inserted inside any part of the body.

- Battery Pack Precautions

  Preventive measures (including but not limited to):

  - ◇ Do not transport, store or use the batteries in high altitudes with low pressure and environments with extremely high and low temperatures.
  - ◇ Do not dispose the batteries in fire or a hot oven, or mechanically crush or cut the batteries to avoid an explosion.
  - ◇ Do not leave the batteries in environments with extremely high temperatures to avoid explosions and leakage of flammable liquid or gas.
  - ◇ Do not subject the batteries to extremely low air pressure to avoid explosions and the leakage of flammable liquid or gas.

WARNING

- Operating the device in a domestic environment may cause radio interference.
- Place the device in a location that children cannot easily access.
- High Current

  Preventative measure: Ground the screw of the device to protective ground before you power it on.
- Do not use multiple devices together to avoid generating high current.

  Preventative measure: Ground the device to protective ground before you power it on.

- Check whether the power supply is correct before use.
- Do not unplug the power cord on the side of the device while the adapter is powered on.
- Operate the device within the rated range of power input and output.
- Use the device under allowed humidity and temperature conditions.
- Do not drop or splash liquid onto the device, and make sure that there is no object filled with liquid on the device to prevent liquid from flowing into it.
- Do not place an open flame on the device, such as a lit candle.
- Do not disassemble the device without professional instruction.

Maintenance Requirements

DANGER

Replacing unwanted batteries with the wrong type of new batteries might result in explosion.

Preventive measures (including but not limited to):

- Replace unwanted batteries with new batteries of the same type and model to avoid the risk of fire and explosion.
- Dispose of the old batteries as instructed.

- It is prohibited for non-professionals and unauthorized personnel to open the device casing.
- The appliance coupler is a disconnection device. Keep it at a convenient angle when using it. Before repairing or performing maintenance on the device, first disconnect the appliance coupler.

Table of Contents

1 Product Overview

1.1 Introduction

The network video decoder is designed and developed for online video surveillance system. The device has powerful data processing capability and stable network function, and supports diversified encoding formats. It is easy to extend and maintain, and convenient to access. This design facilitates installation, deployment, unified control and system management of the entire online video surveillance system. Meanwhile, it substantially reduces overall system cost.

1.2 Main Features

Decoding

- The decoding capability of the Decoder depends on its internal decoding chip.
- Real-time stream decoding.
- Obtain local real-time bit streams, encode them, and then output.
- History stream decoding.
- Obtain the local history bit streams, encode them, and then output.
- Information feedback.
- Webpage can accurately get current decoding status.

Network

- Support remote control with network.
- Synchronize system time with NTP server.
- After you configure the front-end encoding device information, decoder can automatically connect the encoding device, and then begin work independently and reliably.
- In forwarding mode, decoder can get the random data stream from the network server accurately, to realize decoding output.

Output Port

- 1-channel 4K high definition series has 1 group output ports, including 1 VGA output port and 1 HDMI output port.
- 1-channel 4K ultrahigh definition series has 1 HDMI output port.
- 4-channel 8K ultrahigh definition (with 2 input ports) series has 4 HDMI output ports.
- 8-channel 8K ultrahigh definition series (with 2 input ports) has 8-channel output ports.
- 12-channel 8K ultrahigh definition series (with 4 input ports) and 12-channel 8K ultrahigh definition series (with 2 input ports) has 12-channel output ports respectively.
- 16-channel 8K definition series (with 2 and 4 input ports) has 16 HDMI output ports.
- 20-channel 8K definition series (with 2, 4 and 8 input ports) has 20 HDMI output ports.
- 6-channel ultrahigh definition series and 6-channel ultrahigh definition series (with 2 input ports) have 6 HDMI output ports.
- 9-channel ultrahigh definition series and 9-channel ultrahigh definition series (with 4 input ports) have 9 HDMI output ports.

These products can realize real-time surveillance by monitor, and support alarm tour output and decoding tour.

Input Port

- 4-channel 8K ultrahigh definition (H.265, with 2input ports) series has 2 HDMI input ports.
- 8-channel 8K ultrahigh definition series (with 2 input ports) has 4-channel input.
- 12-channel 8K ultrahigh definition series (with 4 input ports) and 12-channel 8K ultrahigh definition series (with 2 input ports) has 2-channel input ports respectively.
- 16-channel 8K high definition series (with 2 input ports) has 1 DP input port and 1 HDMI input port.
- 16-channel 8K high definition series (with 4 input ports) has 2 DP input ports and 2 HDMI input ports
- 20-channel 8K high definition series (with 2 input ports) has 1 DP input port and 1 HDMI input port
- 20-channel 8K high definition series (with 4 input ports) has 2 DP input ports and 2 HDMI input ports.
- 20-channel 8K high definition series (with 8 input ports) has 4 DP input ports and 4 HDMI input ports.
- 6-channel ultrahigh definition series (with 2 input ports) has 2 HDMI input ports.
- 9-channel ultrahigh definition series (with 4 input ports) has 4 HDMI input ports.

Alarm

- External alarm.
- Multiple-channel relay alarm output to activate the peripheral alarm device (such as on-site light control), manual control and activation video output.
- Decoder alarm.
- Remind users about present decoding status.

Serial Port

- Supports peripheral device control function. The control protocol and connection port can be set freely according to your requirements.
- Supports transparent data transmission of various ports, such as RS-232.

User Management

Users in a group enjoy the same permissions. Each group has one permission set, as one subset of the overall permission set; permission set of each group can be edited. The user permissions cannot exceed its group permissions.

Auxiliary Functions

- Supports viewing version information, displaying device hardware port information, software version information, and more.
- Log search function.

- Time synchronization: System time can be set manually, or synchronized with computer time directly.
- Automatic maintenance of the Decoder at fixed time.
- Supports update through webpage.

2 Checking the Device and Connecting the Cables

- For information on the installation requirements on the decoder, refer to the specifications of engineering and construction, and national standards.
- The quality and length of the HDMI cable affect video quality. The video might be blurry, have noise or black edges. The video quality might vary when the same video is output through different cables.

2.1 Unpacking the Box

When you receive the Decoder, check whether there is any visible damage or not. The protective material of the device package can resist most accidental collisions during transportation.

The label at the bottom of the box contains device serial number and other information. Keep the label well and show it to the after-sales service personnel when you need after-sales assistance.

2.2 Device Installation and Operation

2.2.1 Front Panel

1-channel 4K High Definition Series and 4-channel 8K Ultrahigh Definition (with 2 input ports) Series and 6-channel ultrahigh definition series (with 2 input ports) and 9-channel ultrahigh definition series (with 4 input ports)

Figure 2-1 Front panel

Table 2-1 Description of front panel

Name	Icon	Function
Power button		Power button. • Press it 3 times within 1 second to restore the default password. • Press it 5 times within 1 second to restore the factory default settings.
Power indicator		The indicator glows after the system starts.
Network indicator		The network indicator glows blue when an abnormal network event occurs, such as offline and IP conflict.
USB port		External devices can be connected such as a mouse, keyboard and flash drive.

Name	Icon	Function
Alarm indicator		The alarm indicator turns on when there is an alarm.
HDD indicator		Function reserved.
IR receiver	IR	Function reserved.
Output indicator	1 2 3 4	Indicates the working status of output port. Only the first indicator is active.

12-channel 8K Ultrahigh Definition Series with 4 Input Ports and 8/12-channel 8K Ultrahigh Definition Series with 2 Input Ports and 16/20-channel 8K High Definition Series with 2 Input Ports and 16/20-channel 8K High Definition Series with 4 Input Ports and 20-channel 8K High Definition with 8 Input Ports

Figure 2-2 Front panel

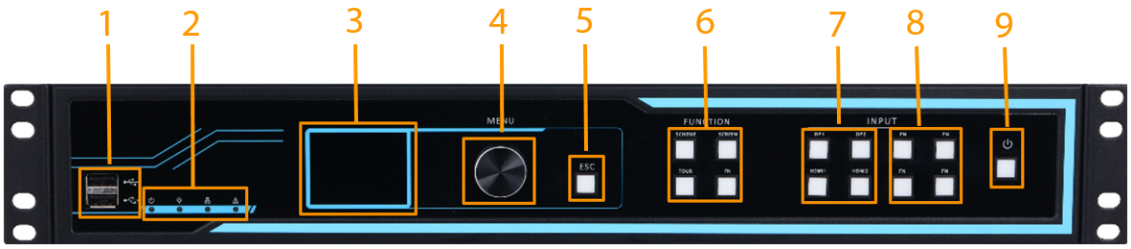


Table 2-2 Description of front panel

No.	Name	Description
1	USB2.0 port	2 USB2.0 ports for connecting the mouse and the keyboard.
2	Indicator light	Indicator lights from left to right are: power indicator, breathing indicator, network indicator, and alarm indicator. If the indicator is green, the status is normal; if the indicator is red, an exception occurs.
3	Screen	Displays device IP address, and more.
4	Knob	Designed for volume control, device basic configuration, and more. When adjusting the volume on the main screen, rotate clockwise to increase the volume, and counterclockwise to decrease the volume.
5	Exit button	Back to the last operation.
6	Function buttons	Clockwise from left to right: scheme switch, video wall control, reserved function, and scheme tour.
7	DP/HDMI information collection buttons	Collects information, and displays on video wall. ● The indicator is solid on when information was successfully collected and displayed on video wall. ● The indicator flashes when no information was collected.

No.	Name	Description
8	FN	Button for reserved function.
9	Power button	Press it, the indicator is on, and the device starts (it takes about 3 minutes).

2.2.2 Rear Panel

1-channel 4K high definition series

Figure 2-3 Rear panel

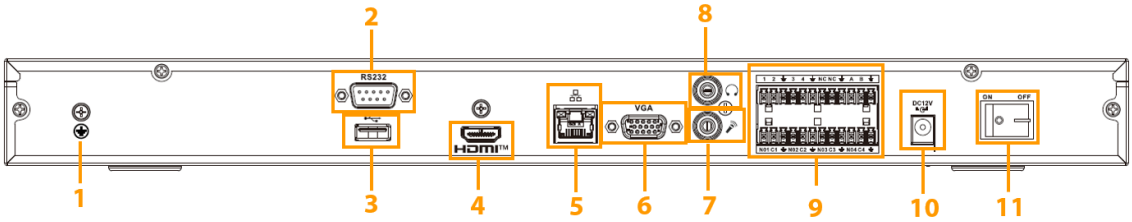


Table 2-3 Description of rear panel

No.	Name	No.	Name	No.	Name
1	Ground	2	RS-232 port	3	USB port
4	HDMI port	5	Network port (10/100/1000 Mbps Ethernet port)	6	VGA port
7	Earphone port (reserved)	8	Microphone port (reserved)	9	4-channel alarm input, 4-channel alarm output, RS-485 port.
10	Power port	11	Power button	—	

4-channel 8K ultrahigh definition series

Figure 2-4 Rear panel

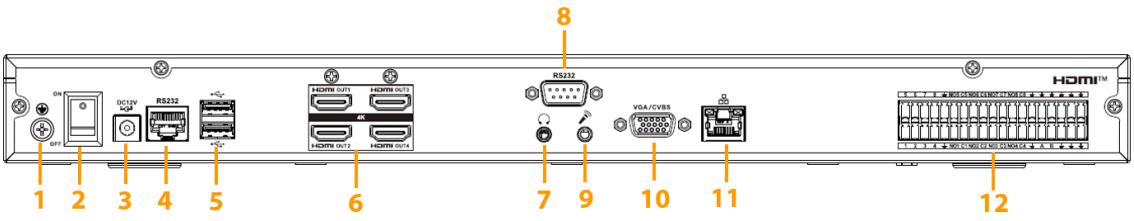


Table 2-4 Description of rear panel

No.	Name	No.	Name	No.	Name
1	Ground	2	Power button	3	Power port

No.	Name	No.	Name	No.	Name
4	RS-232 port of screen control	5	USB port	6	HDMI output port
7	Earphone port (reserved)	8	RS-232 port	9	Microphone port (reserved)
10	VGA (reserved)	11	Network port (10/100/1000 Mbps Ethernet port)	12	Alarm input, alarm output, standard RS-485 port

4-channel 8K ultrahigh definition series with 2 input ports

Figure 2-5 Rear panel

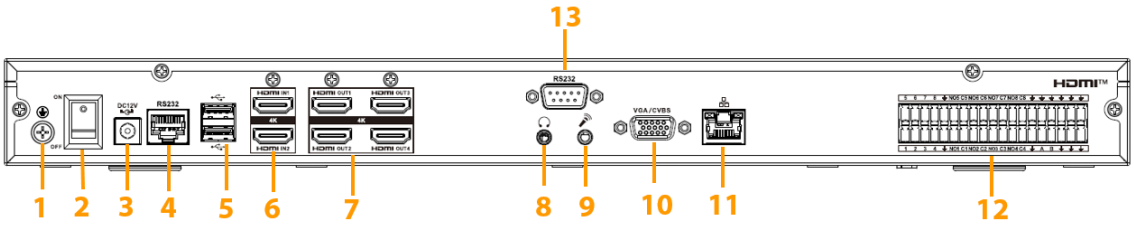


Table 2-5 Description of rear panel

No.	Name	No.	Name	No.	Name
1	Ground	2	Power button	3	Power port
4	RS-232 port of screen control	5	USB port	6	HDMI input port
7	HDMI output port	8	3.5 mm earphone port	9	Microphone port (reserved)
10	VGA (reserved)	11	Network port (10/100/1000 Mbps Ethernet port)	12	Alarm input, alarm output, standard RS-485 port
13	RS-232 port	—			

6-channel ultrahigh definition series

Figure 2-6 Rear panel

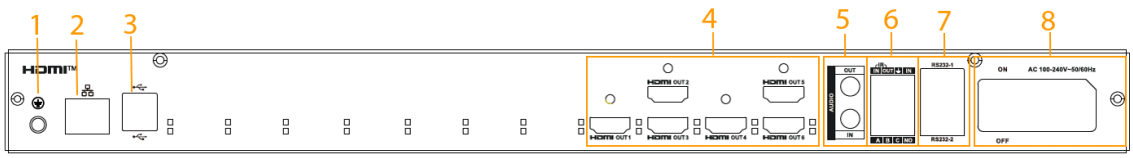


Table 2-6 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)

No.	Description
3	USB 3.0 port
4	HDMI output port
5	Audio out and audio in port
6	Alarm input, alarm output, standard RS-485 port
7	RS-232 port of screen control
8	Power button

6-channel ultrahigh definition series (with 2 input ports)

Figure 2-7 Rear panel

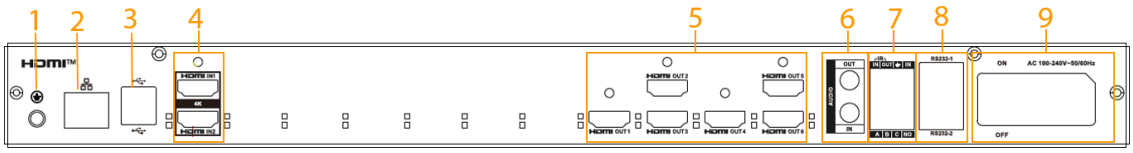


Table 2-7 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI input port
5	HDMI output port
6	Audio out and audio in port
7	Alarm input, alarm output, standard RS-485 port
8	RS-232 port of screen control
9	Power button

9-channel ultrahigh definition series

Figure 2-8 Rear panel

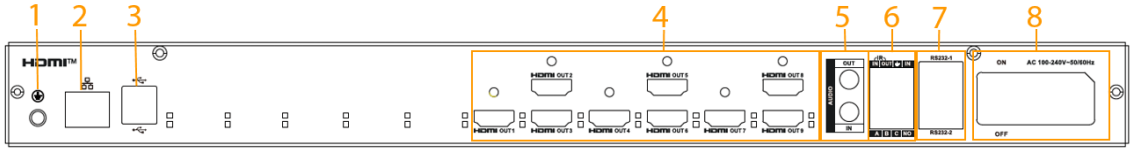


Table 2-8 Description of rear panel

No.	Description
1	Ground

No.	Description
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI output port
5	Audio out and audio in port
6	Alarm input, alarm output, standard RS-485 port
7	RS-232 port of screen control
8	Power button

9-channel ultrahigh definition series (with 4 input ports)

Figure 2-9 Rear panel

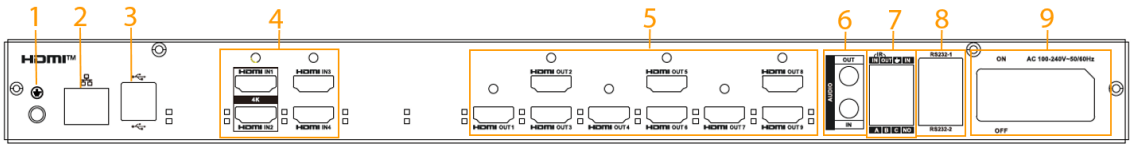


Table 2-9 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI input port
5	HDMI output port
6	Audio out and audio in port
7	Alarm input, alarm output, standard RS-485 port
8	RS-232 port of screen control
9	Power button

12-channel 8K ultrahigh definition series with 4 input ports and 8/12-channel 8K ultrahigh definition series with 2 input ports and 16/20-channel 8K high definition

series with 2 input ports and 16/20-channel 8K high definition series with 4 input ports and 20-channel 8K high definition with 8 input ports

Figure 2-10 NVD1205DU-4I-8K rear panel

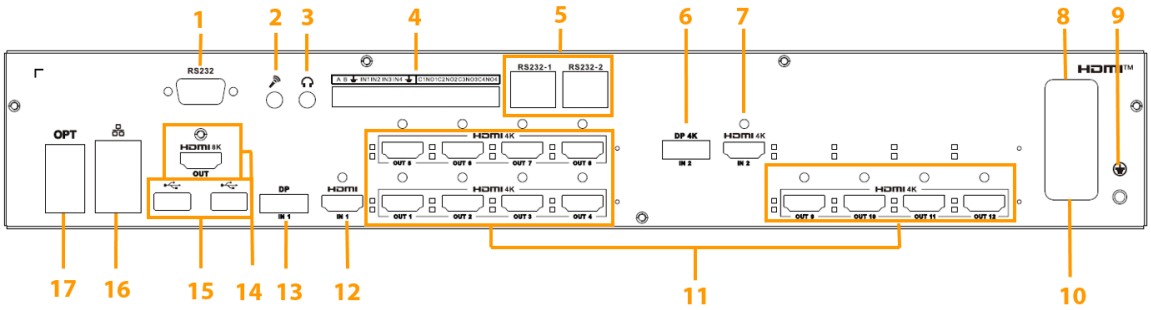


Table 2-10 Description of rear panel

No.	Description	No.	Description
1	RS-232 port	2	Audio in
3	Audio out	4	Alarm in, alarm out, standard RS-485 port
5	RS-232 port for screen control	6	DP port (supports 4K acquisition)
7	HDMI port (supports 4K acquisition)	8	Power switch
9	Ground	10	Power header port
11	HDMI output	12	HDMI input
13	DP signal input	14	HDMI output (supports 8K output)
15	2 USB3.0 ports	16	2 network ports (10/100/1000 Mbps Ethernet port)
17	2 gigabit optical ports	—	

Figure 2-11 NVD1205DU-2I-8K rear panel

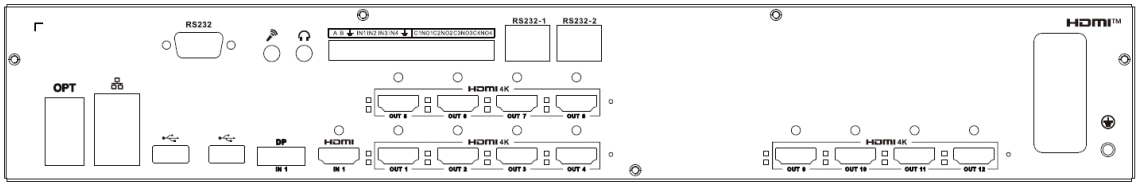


Figure 2-12 NVD0805DU-2I-8K rear panel

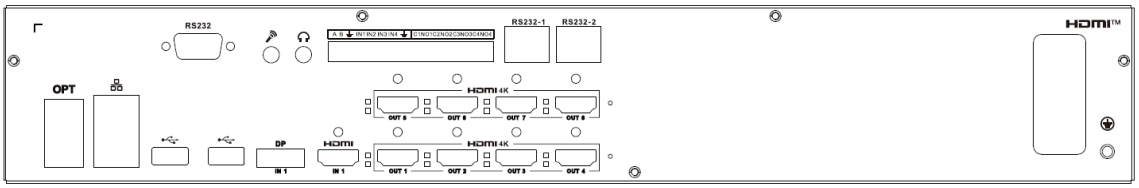


Figure 2-13 NVD1605DU-2I-8K-2H

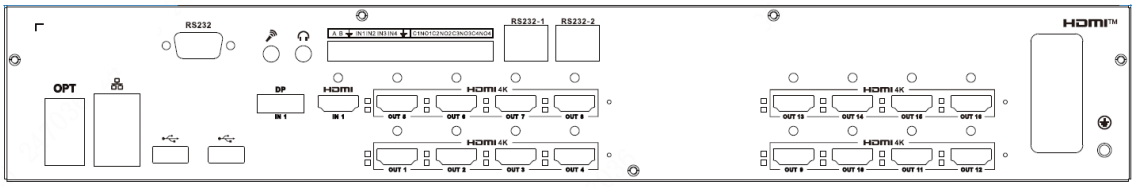


Figure 2-14 NVD1605DU-4I-8K-2U2H

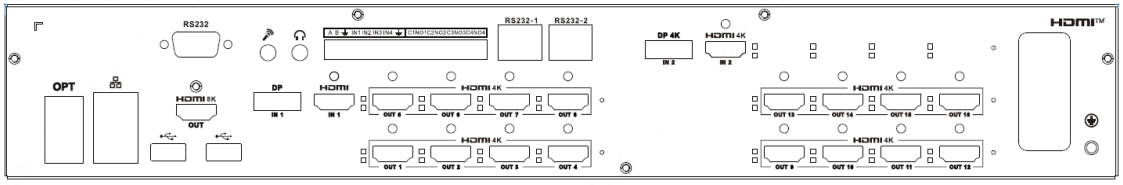


Figure 2-15 NVD2005DU-2I-8K-2H

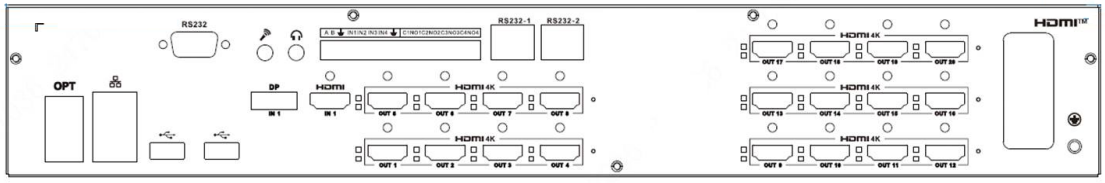


Figure 2-16 NVD2005DU-4I-8K-4H

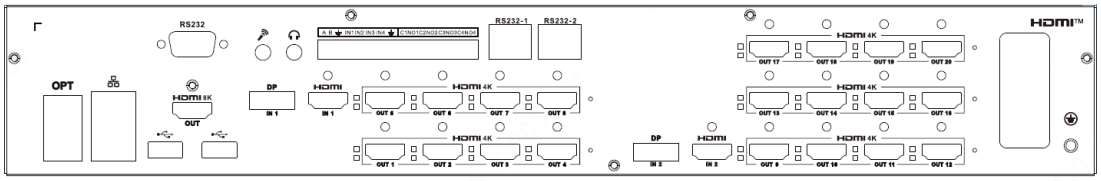
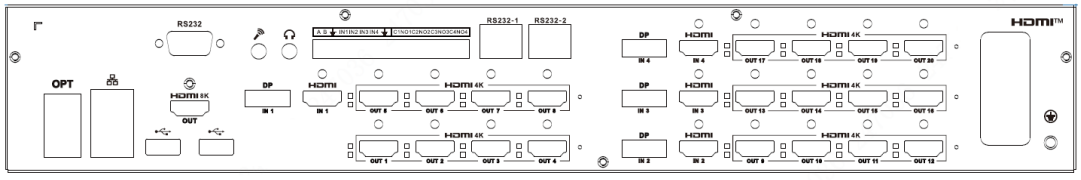


Figure 2-17 NVD2005DU-8I-8K-8H



2.2.3 Installation and Connection

2.2.3.1 Connecting Video Input Devices

All video data are encoded from the front-end device, and then input to the network with RJ-45 port.

2.2.3.2 Selecting and Connecting Video Output Device

- 1-channel 4K high definition series has only 1 group of output ports, including 1 VGA port and 1 HDMI port.

- 1-channel 4K ultrahigh definition series has 1 HDMI port.
- 4-channel 8K ultrahigh definition (with 2 input ports) series has 4 HDMI output ports.
- 6-channel 4K high definition with 4 input ports) series has 6 groups of output ports respectively. Each series has 6 HDMI ports.
- 9-channel 4K high definition (with 4 input ports) series has 9 groups of output ports respectively. Each series has 9 HDMI ports.
- 8-channel 8K high definition (with 2 input ports) has 8 groups of output ports respectively. Each series has 8 HDMI output ports.
- 12-channel 8K high definition (with 2 and 4 input ports) has 12 groups of output ports respectively. Each series has 12 HDMI output ports.
- 16-channel 8K high definition (with 2 and 4 input ports) has 16 groups of output ports respectively. Each series has 16 HDMI output ports.
- 20-channel 8K high definition (with 2, 4 and 8 input ports) has 20 groups of output ports respectively. Each series has 20 HDMI output ports.

We recommend the industrial monitor to be output device of the decoder. It has the following advantages:

- The industrial monitor is suitable for long-time surveillance. Ordinary civil monitor easily gets aging, damaged or even burnt down after working for a long time.
- The industrial monitor boasts higher definition and color rendition than civil device.
- With strong anti-interference capability, it adapts to complicated application environment, and its stability is far better than ordinary device.

It is unreliable to use TV as video output device. You need to reduce the working hours and control the interference from power supply and other devices. The electric leakage risk resulting from low quality TV might damage other devices.

3 Quick Operation Panel

The buttons and knob on the front panel of the Device can be used in conjunction with the small LED screen to change the Device's IP address, display local streams on the video wall, switch between local and network signal video schemes, scheme tour and turn on/off the screen.

The operations above apply to the following models:

- 8-channel 8K high definition (with 2 input ports) has 8 groups of output ports respectively. Each series has 8 HDMI output ports.
- 12-channel 8K high definition (with 2 and 4 input ports) has 12 groups of output ports respectively. Each series has 12 HDMI output ports.
- 16-channel 8K high definition (with 2 and 4 input ports) has 16 groups of output ports respectively. Each series has 16 HDMI output ports.
- 20-channel 8K high definition (with 2, 4 and 8 input ports) has 20 groups of output ports respectively. Each series has 20 HDMI output ports.

3.1 Changing IP Addresses

Procedure

Step 1 After powering on the Device, rotate the menu knob to select **Network Settings**, and then press the menu knob to confirm.

Step 2 Rotate the menu knob to select **IP Address**. After pressing the menu knob, rotate the knob to change the IP address. Once you have made the changes, press the menu knob again to confirm.

Step 3 Repeat Step 2 to change the gateway.

Step 4 Press the **ESC** button to return to the previous menu.

3.2 Displaying Local Streams on the Video Wall

Prerequisites

Connect the Device, cameras and the screen through cables, and configure the video walls on the webpage. For instructions on video wall configuration, see "6.3.1 Adding Video Walls".

Procedure

Step 1 After powering on the Device, rotate the menu knob to select **Quick Control**, and then press the menu knob to confirm.

Step 2 Select the video wall and press the menu knob to confirm.

Step 3 Check the device interface to which the local signal is connected, such as DP1 or HDMI1. Press the corresponding interface button on the front panel, such as DP1 or HDMI1, and wait a few seconds. The video will then be displayed in full screen on the current video wall.

Figure 3-1 Displaying local streams on the video wall

Step 4 (Optional) If the Device is connected to multiple local signal acquisition terminals, you can press the different interface buttons on the front panel to switch between video streams.

3.3 Switching Between Schemes

Prerequisites

Configure video schemes on the webpage. For details, see "6.3.4.2 Scheme Management".

Procedure

Step 1 After powering on the Device, rotate the menu knob to select **Quick Control**, and then press the menu knob to confirm.

Step 2 Select the video wall and press the menu knob to confirm.

Step 3 Press **Scheme** button to display the video scheme.

Step 4 Press **Scheme** button again to switch between the video schemes.

Figure 3-2 Switching between schemes

3.4 Scheme Tour

Prerequisites

Configure scheme tour plans and tour time intervals on the webpage. For details, see "6.3.4.2 Scheme Management".

Procedure

Step 1 After powering on the Device, rotate the menu knob to select **Quick Control**, and then press the menu knob to confirm.

Step 2 Select the video wall and press the menu knob to confirm.

Step 3 Press **Tour** button to play toured videos. Video schemes will be toured according to the time interval.

Step 4 Press **Tour** button again to end the tour.

Figure 3-3 Switching between schemes

3.5 Turning On/Off the Screen

Prerequisites

1. Connect the Device, cameras and the screen through cables, and configure the video walls on the webpage.
   - For instructions on video wall configuration, see "6.3.1 Adding Video Walls".
   - For instructions on serial line production, see "7.1 Serial Lines Production".
2. Select **Setup** > **System Config** > **Comm Setup** and then select 232 as the **COM Type** , monitor switch as the **Function** and 9600 as the **Baud Rate**.
3. Select **Setup** > **Display Management** > **Screen Management** > **Screen Setup**, select Dahua as the **Manufacturer** and the corresponding serial and then fill in the com address of the serial port.

Procedure

Step 1 After powering on the Device, rotate the menu knob to select **Quick Control**, and then press the menu knob to confirm.

Step 2 Select the video wall and press the menu knob to confirm.

Step 3 Press **Screen** button on the front panel to turn on the video wall.

Step 4 Press **Screen** button on the front panel again to turn off the video wall.

Figure 3-4 Screen switch

3.6 Restoring to Default Settings

Procedure

Step 1 After powering on the Device, press and hold the **ESC** button for 5 seconds. The Device will restart automatically.

Step 2 After the restart, the Device will restore to the default settings.

4 Local Page Configuration

4.1 Start and Shutdown

4.1.1 Start

Connect the device to the power supply, and then press the power button on the rear panel. Power indicator on indicates the device starts.

4.1.2 Shutdown

Press and hold the power button on the front panel for 3 s to shut down the device.

- Unplug power supply to shut down the device.
- If the device is forcibly shut down or suddenly disconnected from its power supply while it is working, it will resume working on the operations it was doing before it was turned off.

4.2 Initializing

Procedure

Step 1 The device starts up normally, and then enters the initializing page.

Step 2 Read and select the software license agreement and privacy policy, and then set the passwords.

The password must consist of 8 to 32 non-blank characters and contain at least two types of the following characters among uppercase and lowercase letters, numbers, and special characters (excluding ' , ", ; : and &). The confirming password must be the same as the new password.

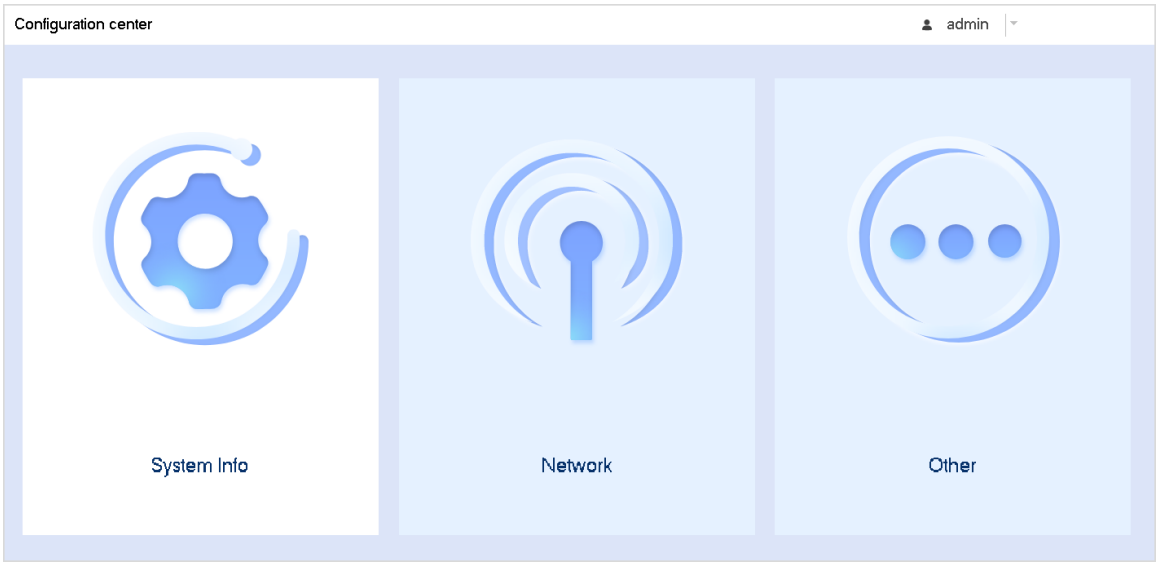
Step 3 Click **OK**.

4.3 Login

Procedure

Step 1 On the login page, enter the username and password, and then click **Login**.

Figure 4-1 Login



Step 2 After login, the system enters the main page.

Figure 4-2 Main page

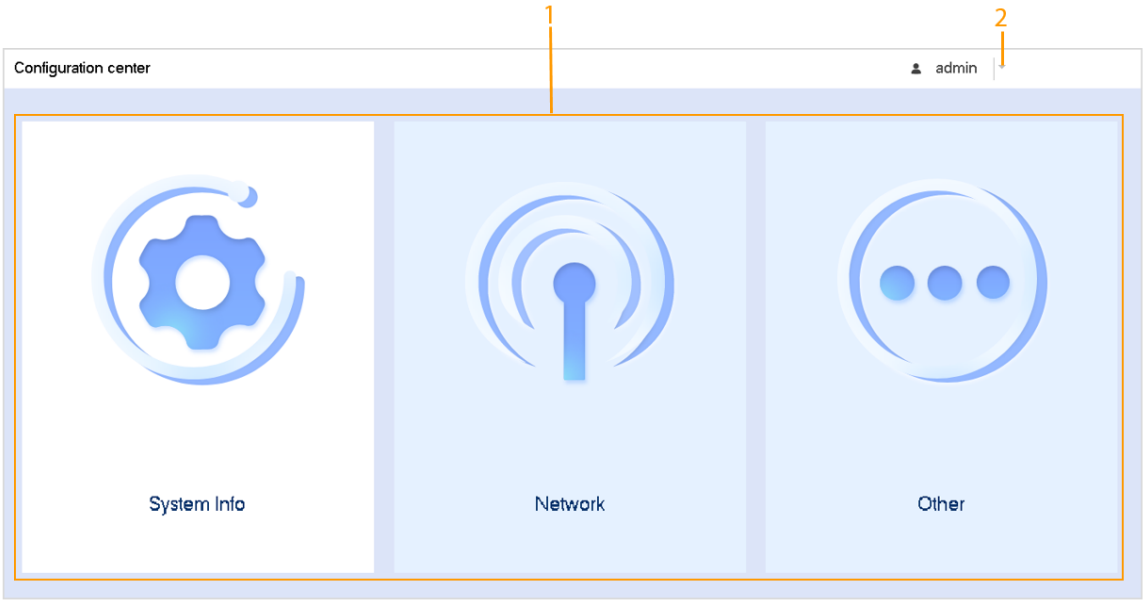


Table 4-1 Main page description

No.	Description
1	Function menu, including system information, network settings and others.
2	Account information. You can log in or log out the system.

4.4 Network Settings

Procedure

Step 1 On the main page, click **Network**.

Figure 4-3 Network settings

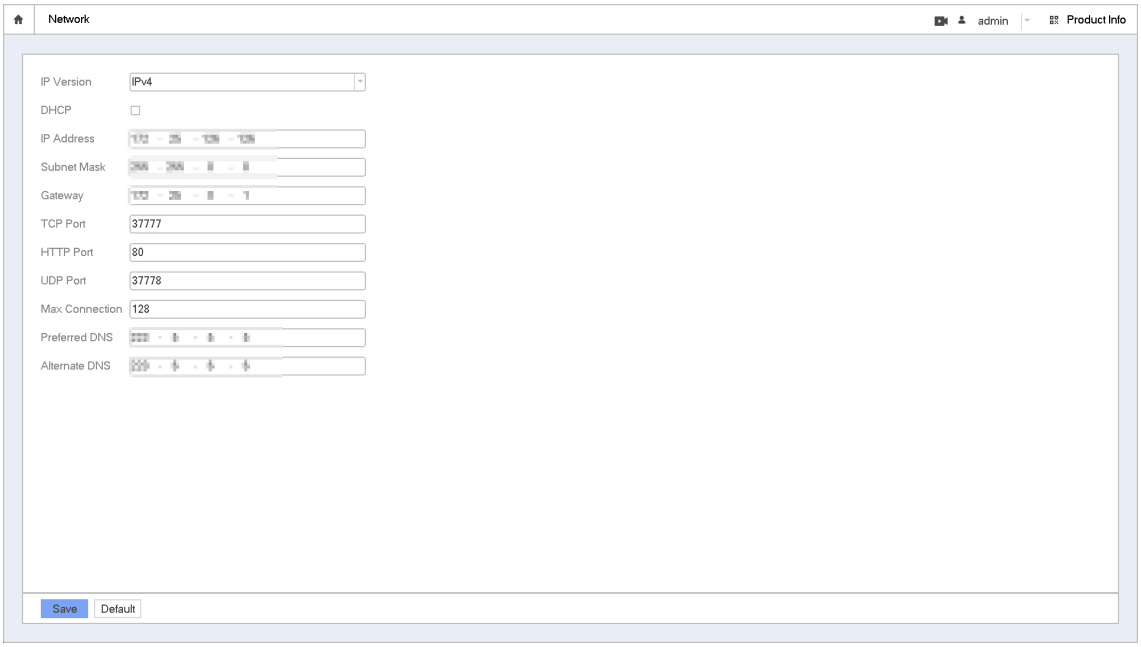


Table 4-2 Parameter description

Parameter	Description
IP Version	The default IP version is IPv4.
DHCP	Select the check box, and then the system assigns IP address automatically.
IP Address	Configure the IP address of the device.
Subnet Mask	Configure the subnet mask of the device.

Step 2 Configure the parameters, and then click **Save**.

4.5 System Information

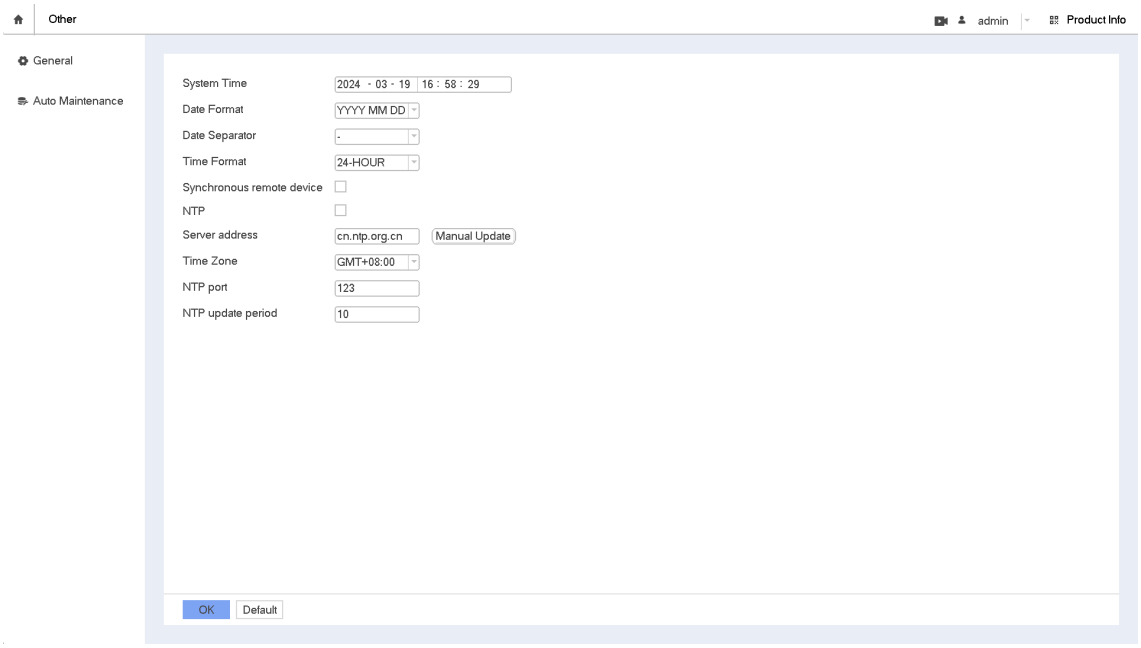
On the main page, click **System Info**, and then you can view the system status, version information and legal information.

4.6 Others

General

1. On the main page, select **Other**.
2. Select **General**, and then configure the parameters.

Figure 4-4 General

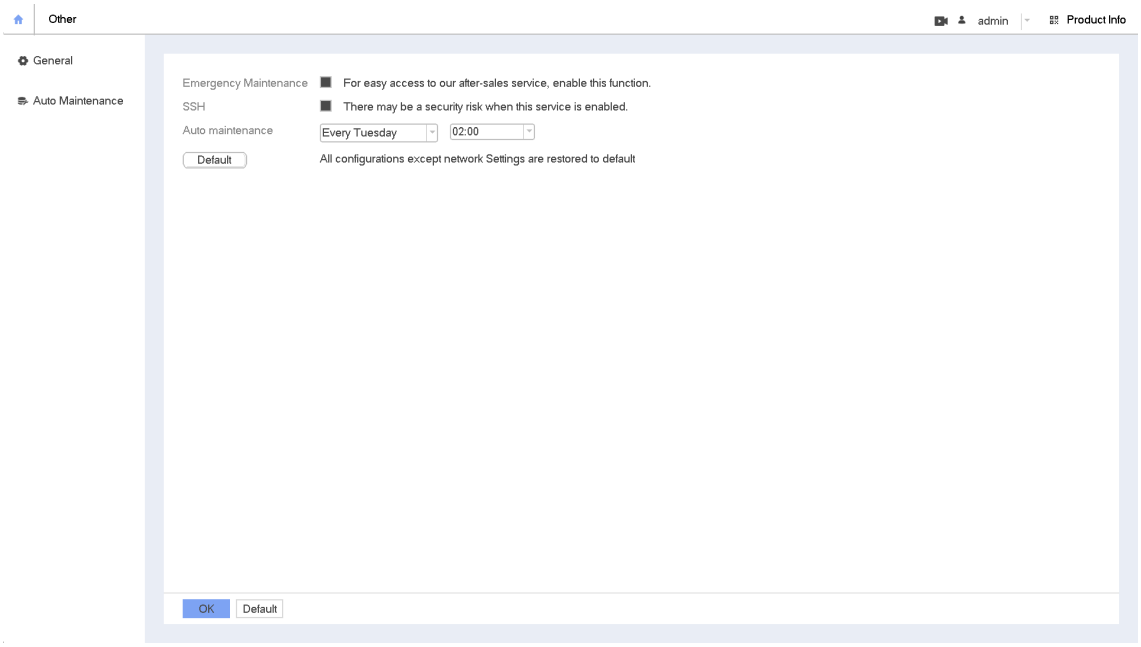


3. Click **OK**.

Auto Maintenance

1. On the main page, click **Other**.
2. Select **Auto Maintenance**, and then configure the emergency maintenance and SSH.

Figure 4-5 Auto Maintenance



3. Click **OK**.

5 Local Page Configuration for 1-channel 4K High Definition Series

- Before operating on the local page, connect the display and other control devices (such as mouse and keyboard) to the Decoder.
- The local pages in this chapter are for reference and might differ depending on the device models.

5.1 Start and Shutdown

5.1.1 Start

Connect the Decoder to the power, and then press the power switch on the rear panel. The power indicator light turns on and the device starts.

5.1.2 Shutdown

Press and hold the power button on the front panel for 3 second to shut down the Decoder.

If the power is cut off or the Decoder is forcibly shutdown while the Decoder is working, after the power connection becomes normal, the system will automatically connect to the video devices, and restore to its previous work status.

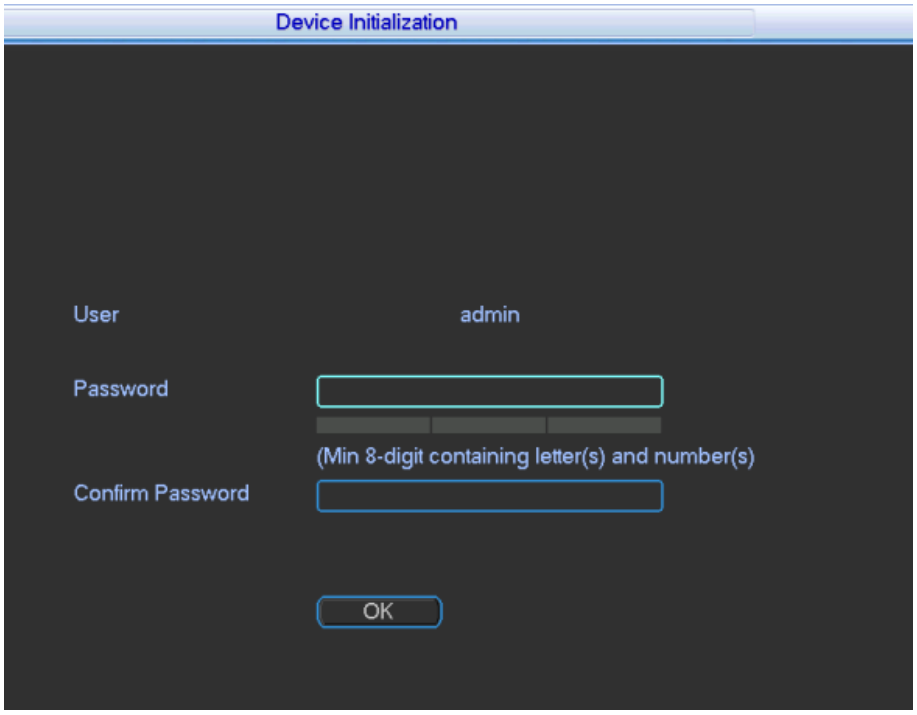
5.2 Software Page Operation

5.2.1 Entering System Menu

Procedure

Step 1 Start the device.

Figure 5-1 Device initialization



Step 2 Set admin user password.

The password can be set from 8 through 32 non-empty characters and contains at least two types from capital letter, lower-case letter, number, and special characters (excluding "'", """, ";", ":" and "&"). **Password** and **Confirm Password** shall be the same. Enter a strong password according to the password strength indication.

Step 3 Click **OK**.

Step 4 Click right mouse button.

Figure 5-2 Login

Step 5 Enter password, and then click **OK** to login.

The account will be locked if wrong password is entered for 5 times within every 30 minutes.

5.2.2 Main Page

After login, the main page is displayed.

Figure 5-3 Main page

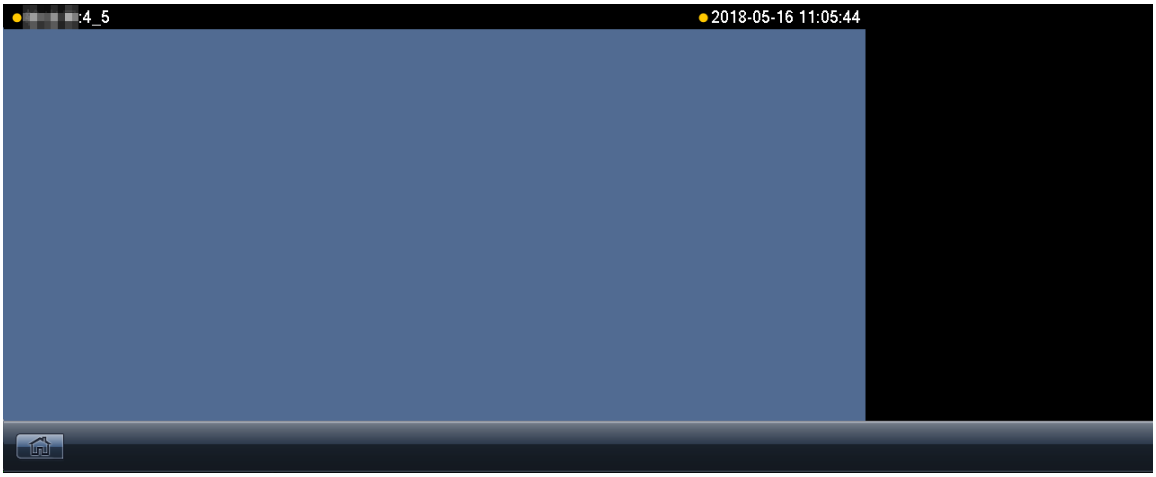


Figure 5-4 Main page (1-channel 4K high definition series)

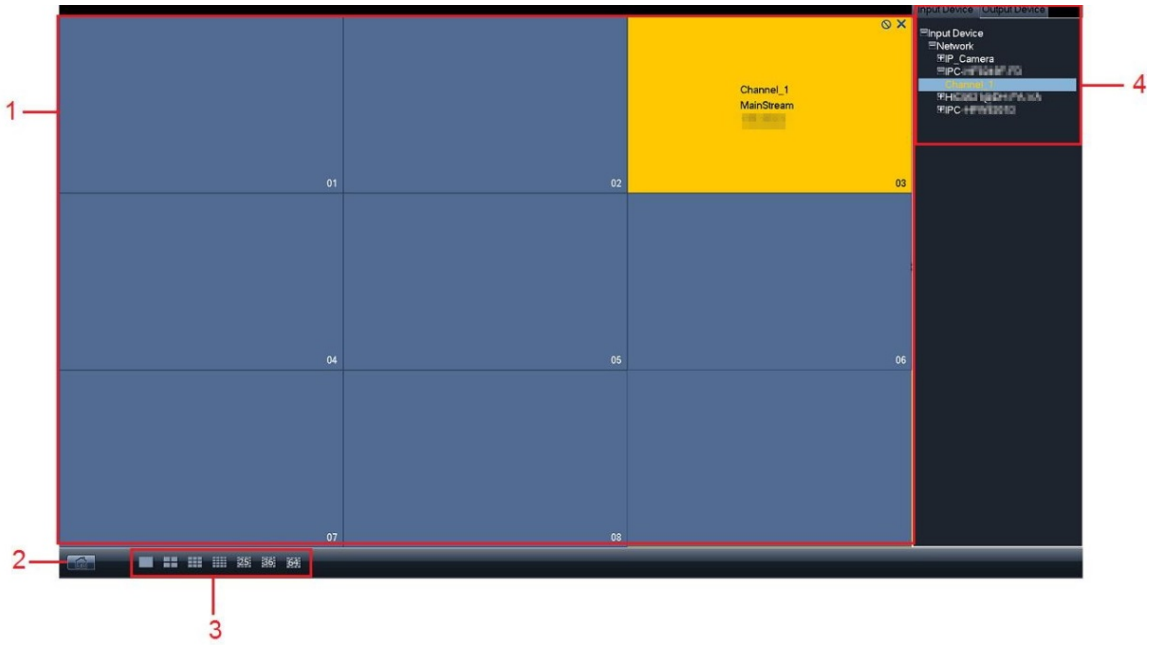


Table 5-1 Description of icons

No.	Name	Functional description
1	Display window	Display the splitting diagram of present output screen or fusion screen. Click one channel, and the corresponding area turns yellow. It means that the channel has been selected. Supports displaying 1, 4, 9, 16, 25, 36 and 64 screens at the same time.
2	Short-cut menu	Click to enter the main menu page.

No.	Name	Functional description
3	Display control area	There are 7 display modes, including single, 4, 9, 16, 25, 36 and 64 channels. (High-definition decoding card is different from standard definition decoding card.)
4	Input device and output device	Display input/output device of each slot and channel. ● Click **Output Device** to switch to output device list. ● Click **Input Device** to switch to input device list.

5.2.3 Menu Introduction

Right-click the main page, and the functional menu pops up.

Figure 5-5 Functional menu

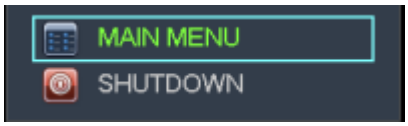


Table 5-2 Functional menu description

Name	Description
Main menu	Displays main menu, including system setting, system information and shutdown.
Shutdown	Shut down the device.

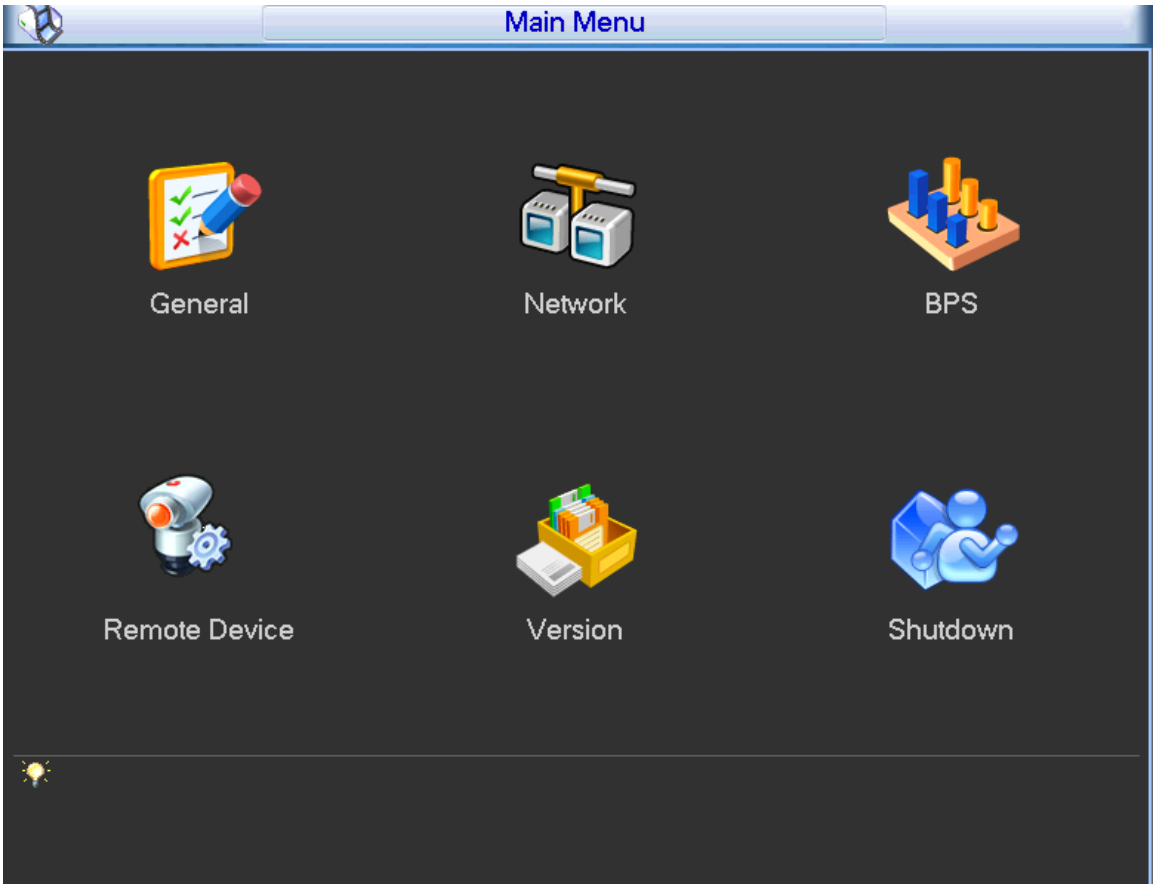
5.3 Advanced Operation of Menu

5.3.1 Main Menu

1-channel 4K High Definition Series

Main menu includes general, network, BPS, remote device, version and shutdown.

Figure 5-6 Main menu



5.3.2 Menu Navigation

1-channel 4K High Definition Series

Table 5-3 Menu navigation

Main Menu	Description
General	Set system time, device number. and other parameters.
Network	Set IP address, video data transmission protocol and other parameters.
BPS	Display real-time channel status, resolution and frame rate information.
Remote Device	Add and delete remote device.
Version	You can view the version details such as system hardware feature, software version and release date.
Shutdown	Log out menu user, shut down system, restart system and switch user.

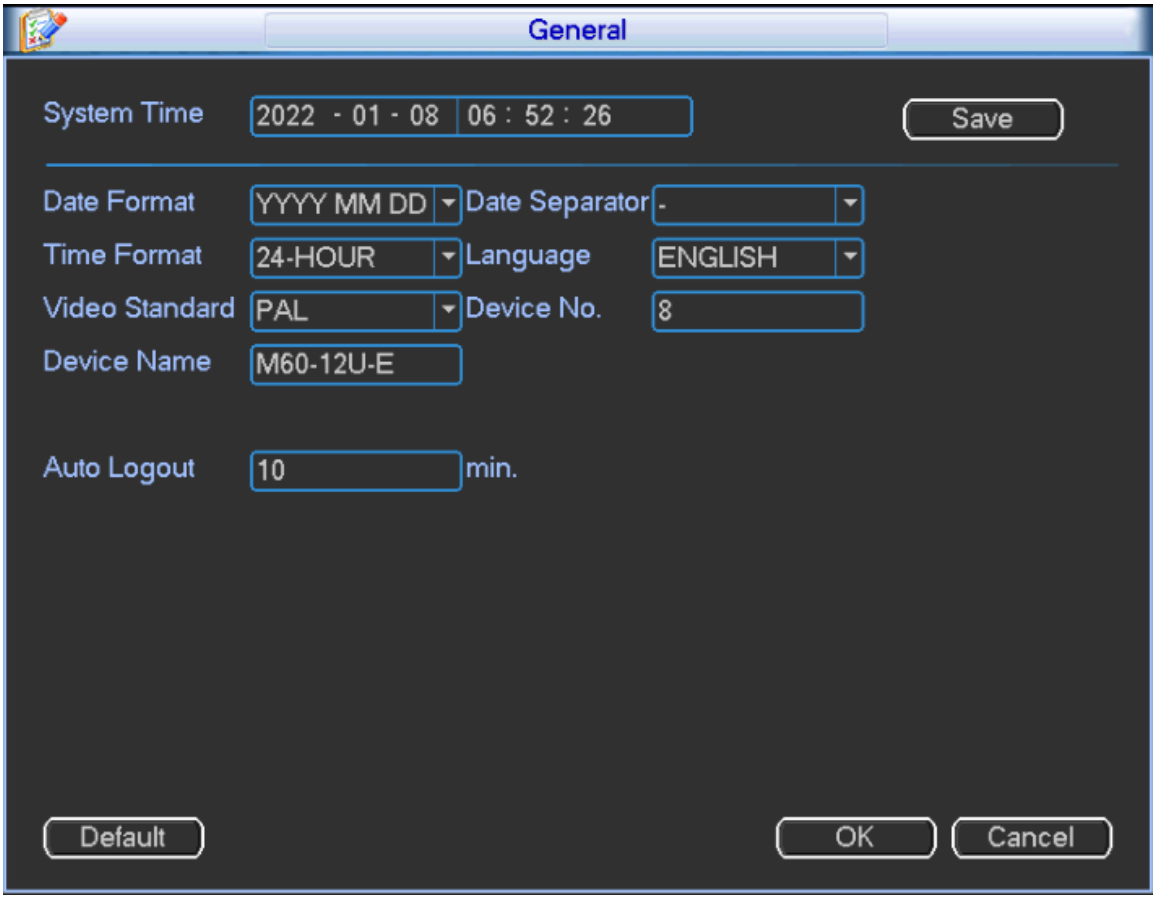
5.3.3 General Settings

You can configure basic information for the Decoder.

Procedure

Step 1 On the main menu, select **System Setting** > **General**.

Figure 5-7 General



Step 2 Configure parameters.

Table 5-4 General parameters description

Parameter	Description
System Time	Modify the current system date and time, and then click **Save**. System time can only be changed when it is not recording time or when the recording has stopped, otherwise you cannot search for the recoded video.
Date Format	Select date display format from YYYY MM DD, MM DD YYYY and DD MM YYYY.
Date Separator	Separator of date format.
Time Format	Select 24-hour or 12-hour.
Language	Change the language of the menu from Simplified Chinese to English, or vice versa.

Parameter	Description
Video Standard	Select the video standard. It is PAL by default.
Device No.	Customize the Device number and Device name to make it easy to identify it.
Device Name	
Auto Logout	Menu standby time can be set from 0 minutes to 60 minutes. • There is no standby time when it is set to 0 minutes. Also, the system will not log out automatically. • If the standby time is set, the system will log out the current user if there is no operation within the selected time. You need to log in again to use the menu.

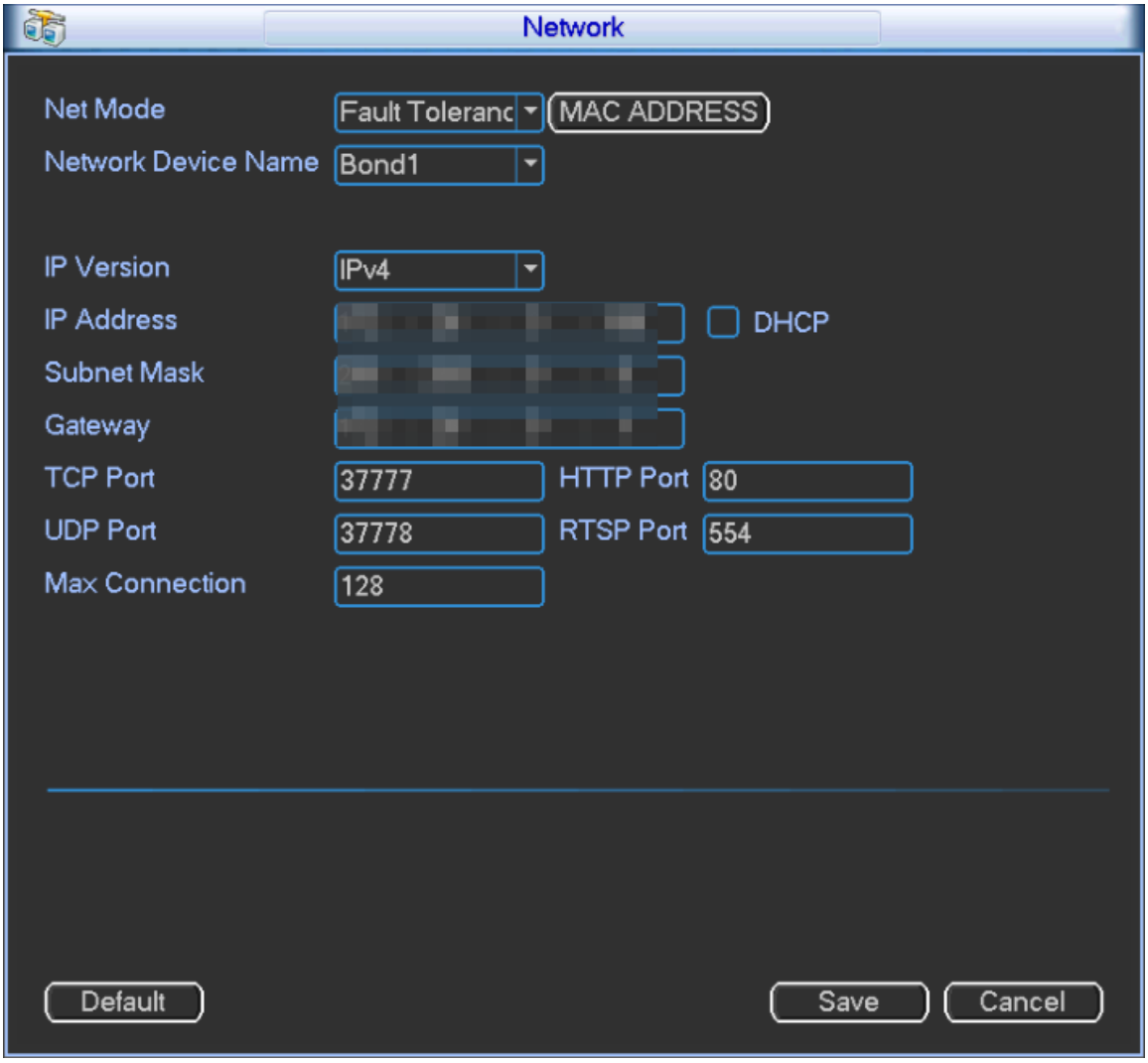
Step 3 Click **OK**.

5.3.4 Network

Configure the device network parameters, so that the Decoder can communicate with other devices on the same network.

Step 1 On the main menu, select **System Setting** > **Network**.

Figure 5-8 Network



Step 2 Configure the parameters.

Table 5-5 Network parameters description

Parameter	Description
Net Mode	It is **Fault Tolerance** by default.
MAC Address	Click the icon to display the MAC address.
Network Device Name	It is **Bond1** by default.
IP Version	It is **IPv4** by default.
IP Address	Enter numbers to change the IP address, and then configure its subnet mask and gateway. The IP address and gateway must be on the same network segment.
Subnet Mask	
Gateway	

Parameter	Description
DHCP	Select the **DHCP** checkbox to allow the system to automatically get the IP address for you. When the **DHCP** function is enabled, the IP address, gateway, and subnet mask cannot be set manually. • If **DHCP** is enabled, the information that it gets will be displayed in the IP address box, subnet mask box and gateway box. If DHCP is not enabled, all the field boxes will contain a 0. • When **DHCP** is not enabled, the static IP information will restore to default settings. You need to configure IP again.
TCP Port	Leave it as default.
HTTP Port	
UDP Port	
RTSP Port	
Max Connection	The number of connections ranges from 0 to 128. If it is 0, network users are not allowed to connect. The maximum number of connections is 128.

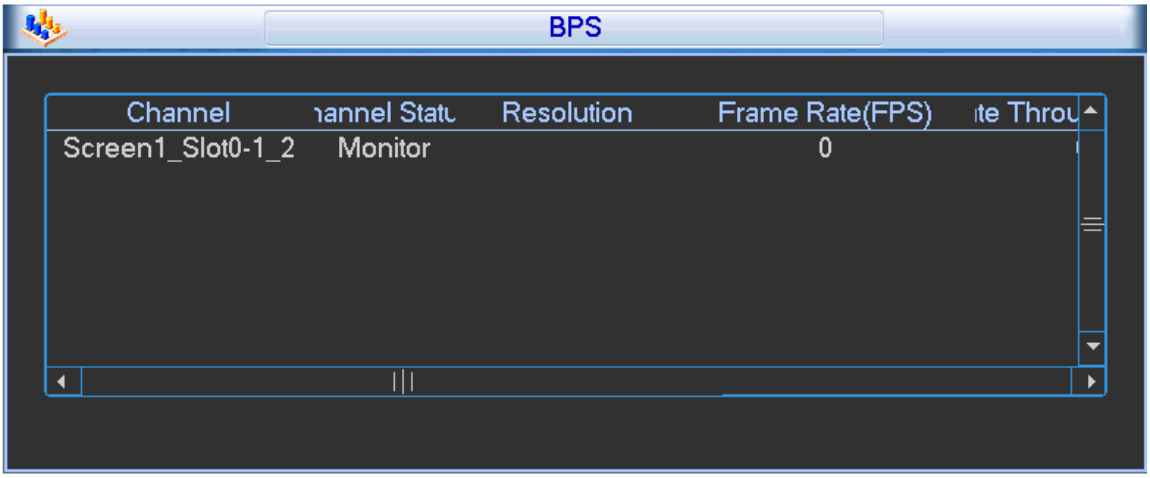
Step 3 Click **Save**.

5.3.5 BPS

Only 1-channel 4K high definition series support BPS.

In the main menu, select **BPS** to view the real-time channel status, resolution and frame rate information.

Figure 5-9 BPS

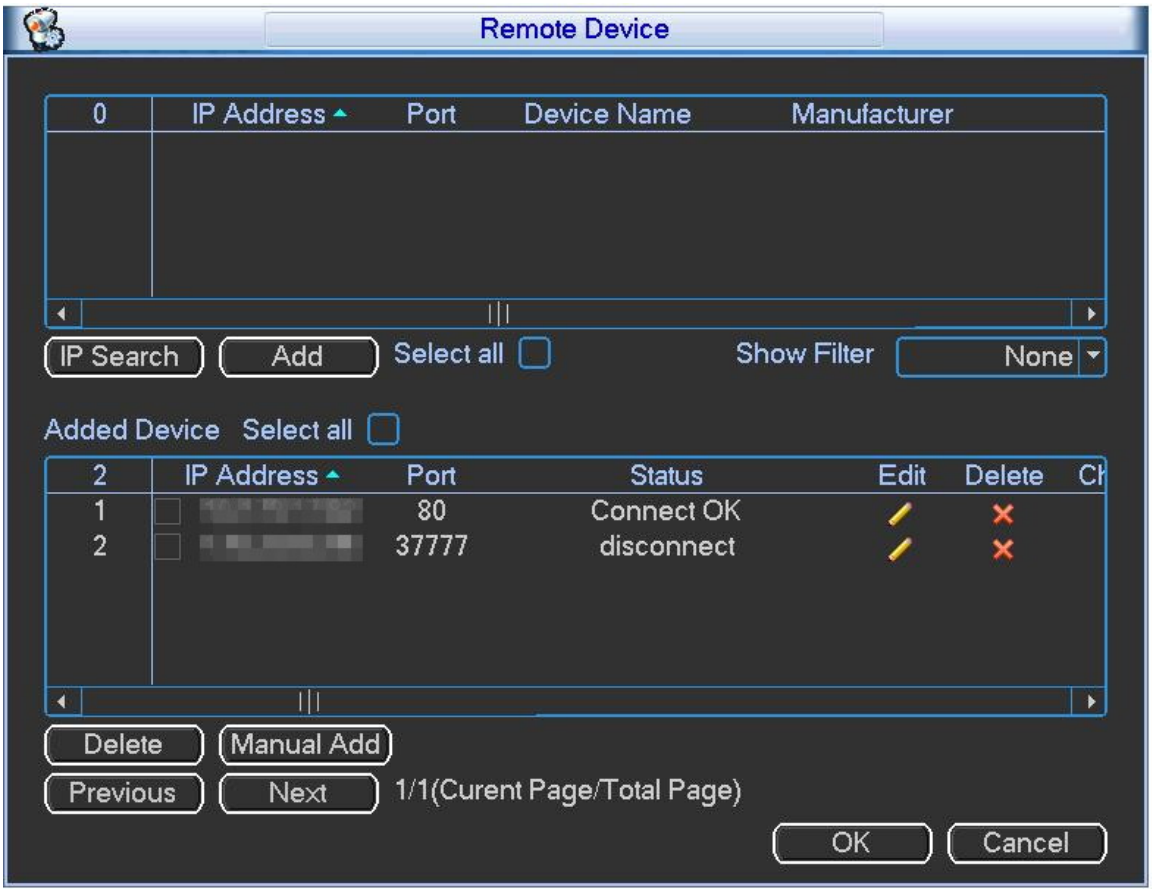


5.3.6 Remote Device

Only 1-channel 4K high definition series support adding remote devices.

In the main menu, select **Remote Device**, and then add remote devices manually or automatically. You can also edit, delete and upgrade the remote device.

Figure 5-10 Remote device



5.3.6.1 Search

Procedure

Step 1 Click **IP Search**.

The searched devices are displayed.

Step 2 Tick the check box before one device, and then click **Add**.

The device will appear in the **Added Device** area.

Select the checkbox of **Select all** to select all devices.

In the drop-down list on the right of **Show Filter**, select filter criteria, and fill in the filter value, to search the filtered device information.

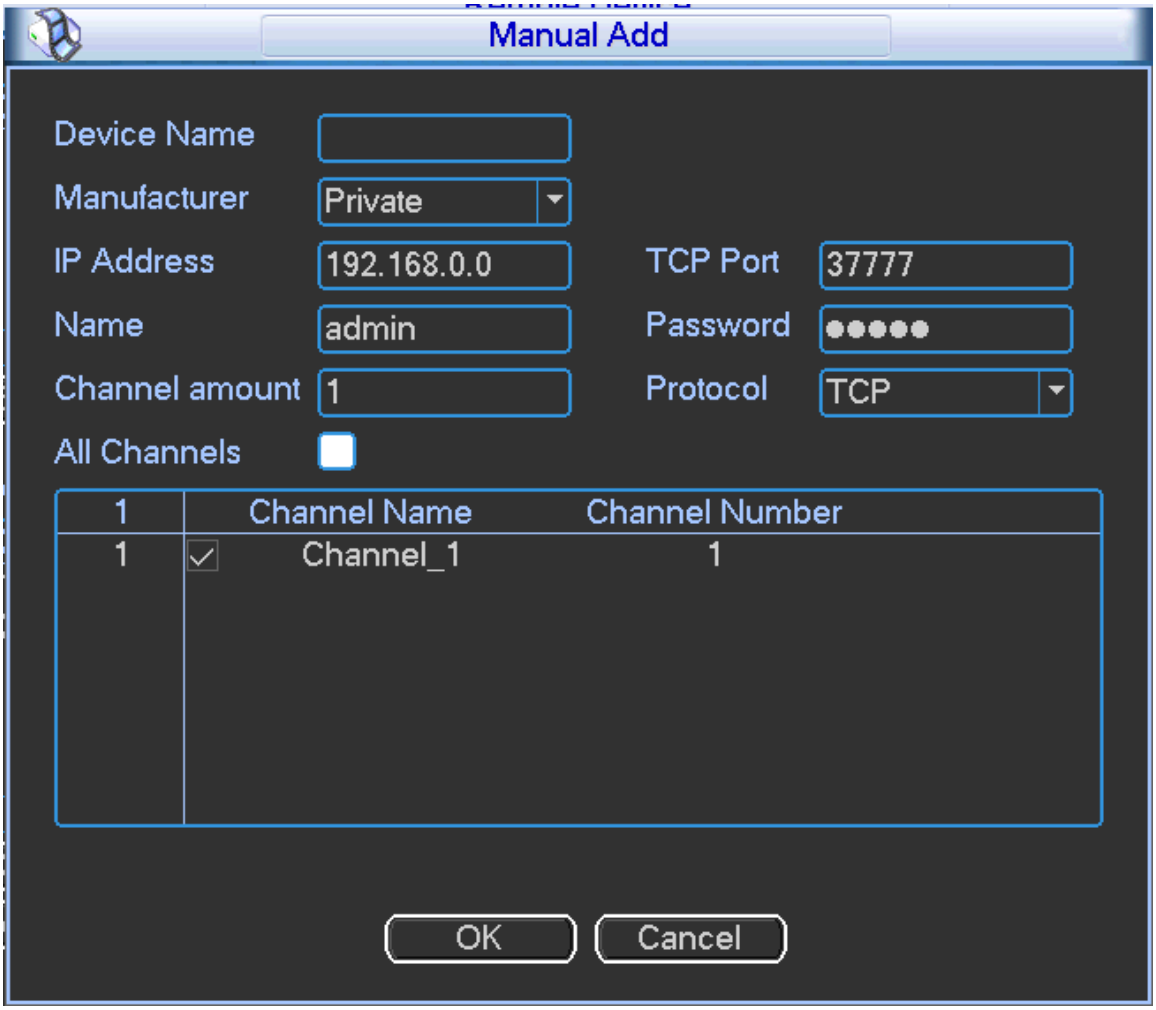
Step 3 Click **OK** to complete.

5.3.6.2 Manual Add

Procedure

Step 1 Click **Manual Add**.

Figure 5-11 Manual add



Step 2 Configure the parameters according to your actual need.

Table 5-6 Manual add parameters description

Parameter	Description
Device Name	Fill in device name you want to add, and tick the checkbox to fill it with white, so as to enable the device.
Manufacturer	Select a manufacturer according to the actual situation. You can add manufacturers, including Private, Panasonic, Sony, Dynacolor, Samsung, AXIS, Sanyo, Pelco, Arecont, Onvif, Gosuncn, LG, Watchnet, Canon, PSIA, GB28181, AirLive and JVC.
IP Address	Enter the IP address of the remote device.
TCP Port	TCP service port. The default setting is 37777. You can configure this parameter according to your actual situation.
Name and Password	Enter the username and password to login the remote device.

Parameter	Description
Protocol	Select protocol of remote device.
Channel Amount	Select the channel number that you want to connect. You can select all channels.

Step 3 Click **OK** to complete.

The device will appear in the **Added Device** area.

5.3.6.3 Editing Remote Device

Click . The **Edit** dialog box pops up. Refer to Table 5-6 to edit remote device information, and then click **OK**.

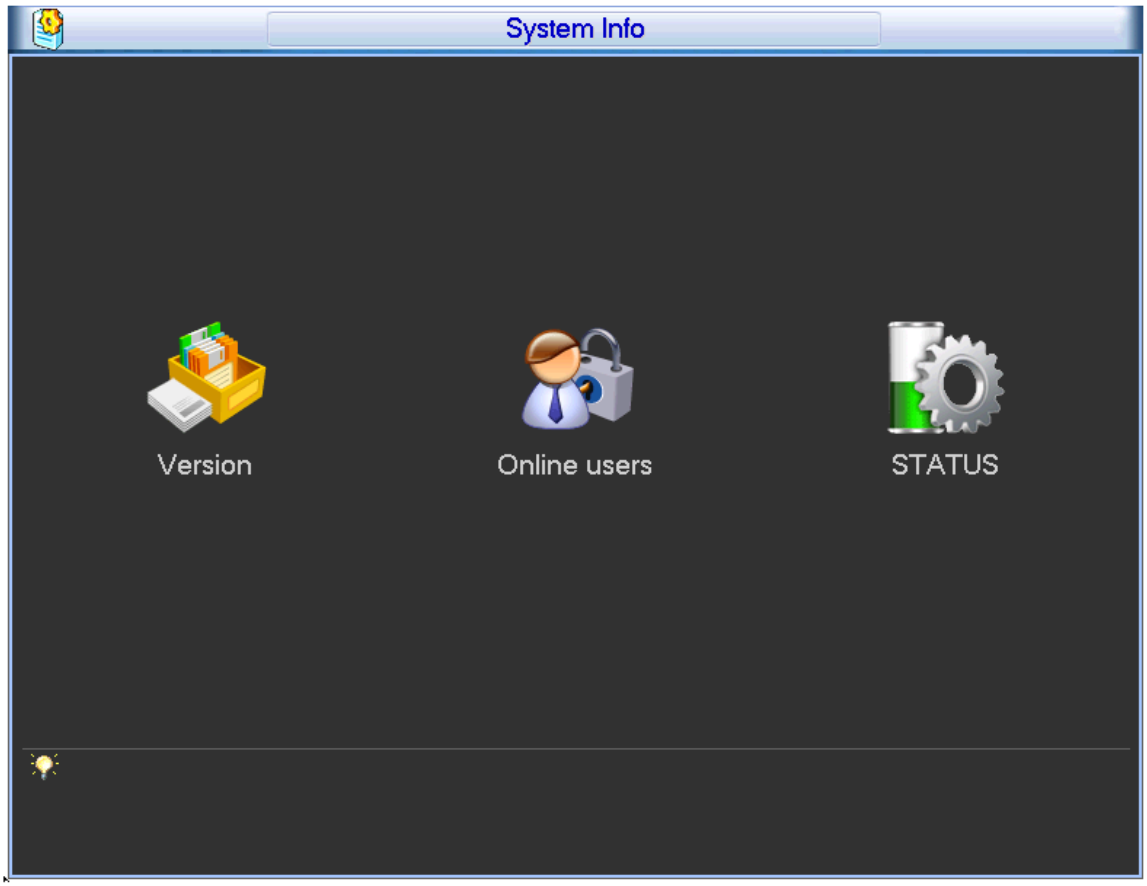
5.3.6.4 Deleting Remote Device

Click or select an added remote device, and then click **Delete**.

5.3.7 System Information

You can view version info, online users and system status.

Figure 5-12 System information



5.3.7.1 Version

In the main menu, select **System Info** > **Version**. You can view the version details such as system version, build date, web version and serial number.

For 1-channel 4K high definition series, click **Version** on the **Main Menu** page.

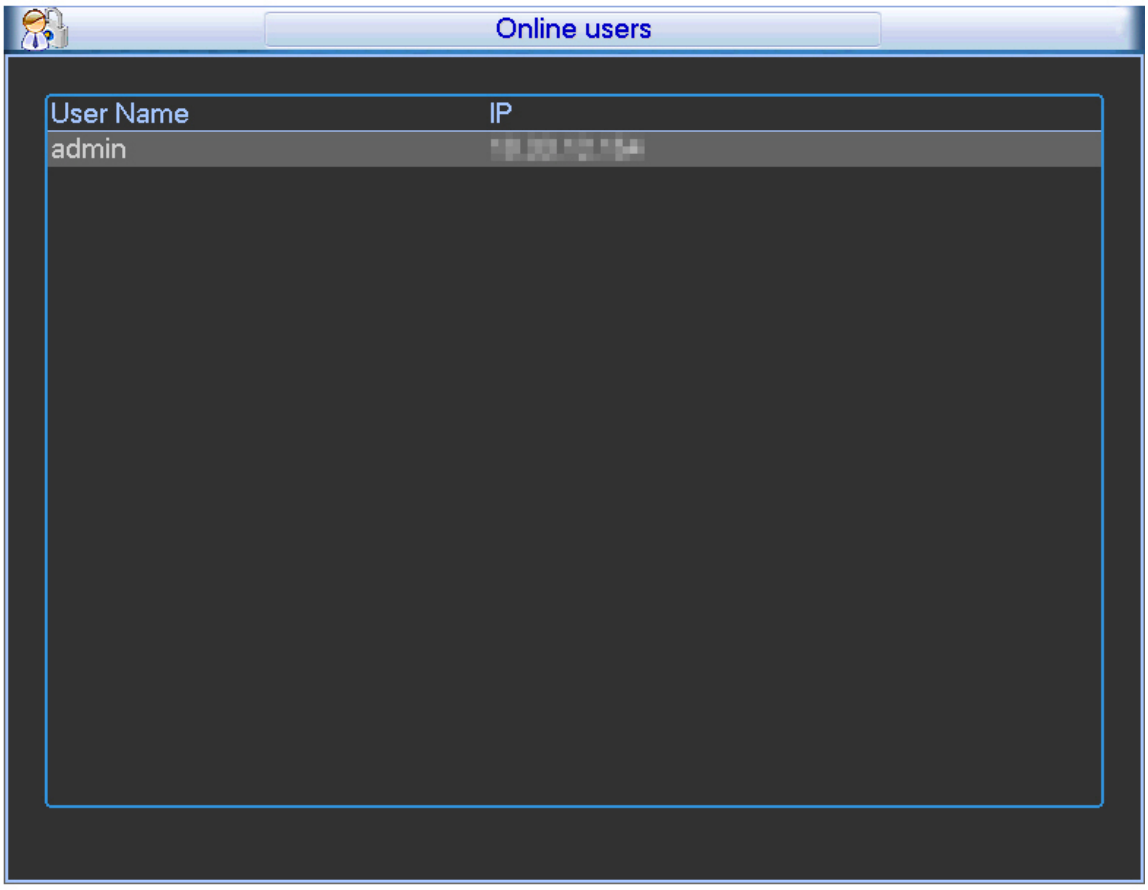
5.3.7.2 Online Users

1-channel 4K high definition series does not support this function.

You can view online users that visit the decoder remotely.

In the main menu, select **System Info** > **Online users**.

Figure 5-13 Online users



5.3.7.3 Status

1-channel 4K high definition series does not support this function.

In the main menu, select **System Info** > **Status**, you can view fan speed, card, temperature and source information, device time, net percentage, CPU percentage and memory percentage.

Figure 5-14 Status

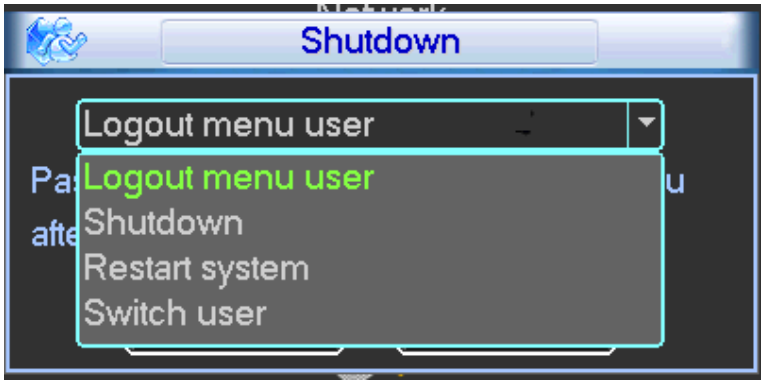
Table 5-7 System status description

Parameter	Description
Fan Speed	Display the speed of two fans.
Card Information	Display information about cards in the slots, including card type, encoding or decoding card. Also, display present operating status, including data exchange and online status.
Temperature Information	Display present temperature and status of cards.
Source Information	Display the status of two powers.
Time	Display present time of decoder.
Net Percentage	Display the receiving and transmitting rate of each network port.
CPU Percentage	Display percentage of each CPU.
Memory Percentage	Display percentage of memory.

5.3.8 Shutdown

On the main menu, select **Shutdown**, you can log out menu user, shut down, restart system and switch user.

Figure 5-15 Shutdown



- Logout menu user: Exit the menu, and you need to input password to enter the menu again.
- Shutdown: Exit the system, and turn off power supply.
- Restart system: Exit the system, and restart the system.
- Switch user: Log out current user, and switch to another user.

6 Web Operations

The webpages in this chapter are for reference only and might differ depending on the model of the device.

6.1 Connecting to Network

Procedure

Step 1 Connect the network port of the Decoder to the network port of your computer with the network cable.

Step 2 Set the computer and the Decoder to the same IP segment.

The default IP address of the Decoder is 192.168.1.108.

Step 3 Ping ***.***.***.***(IP address of the Decoder) on your computer to check whether connection is working normally. Usually the returned TTL value should be less than or equal to 64.

Step 4 Open the browser, enter the IP address of the Decoder in the address bar, and then press Enter.

Web controls can be recognized and downloaded automatically. The system can download the latest Web controls and remove the old one.

Step 5 After you log in to the webpage, change the IP address of the decoder according to the actual situation.

Step 6 Connect the Decoder to the network.

6.2 Logging in to the Webpage

Procedure

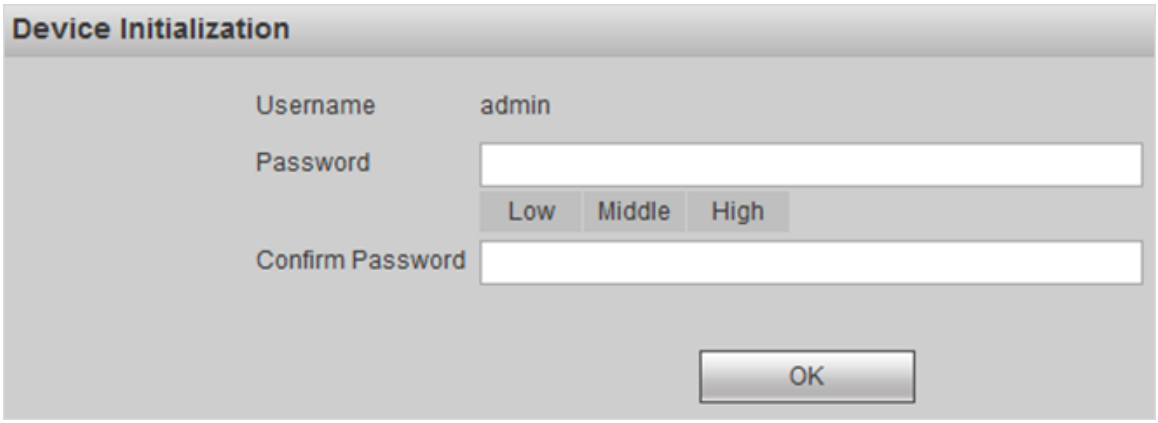
Step 1 Enter the IP address of the Decoder in the browser address bar.

Step 2 Set the password for the admin user.

- The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: Uppercase and lowercase letters, numbers, and special characters (excluding ' " ; : &).
- Set a high security password according to the password strength prompt.

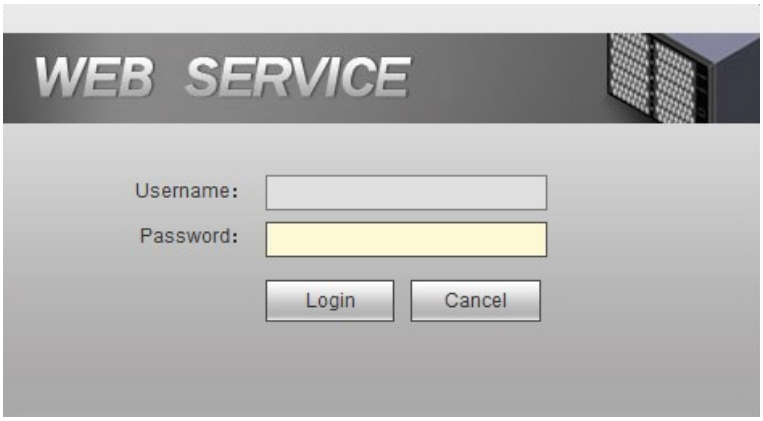
Step 3 Click **OK**.

Figure 6-1 Device initialization



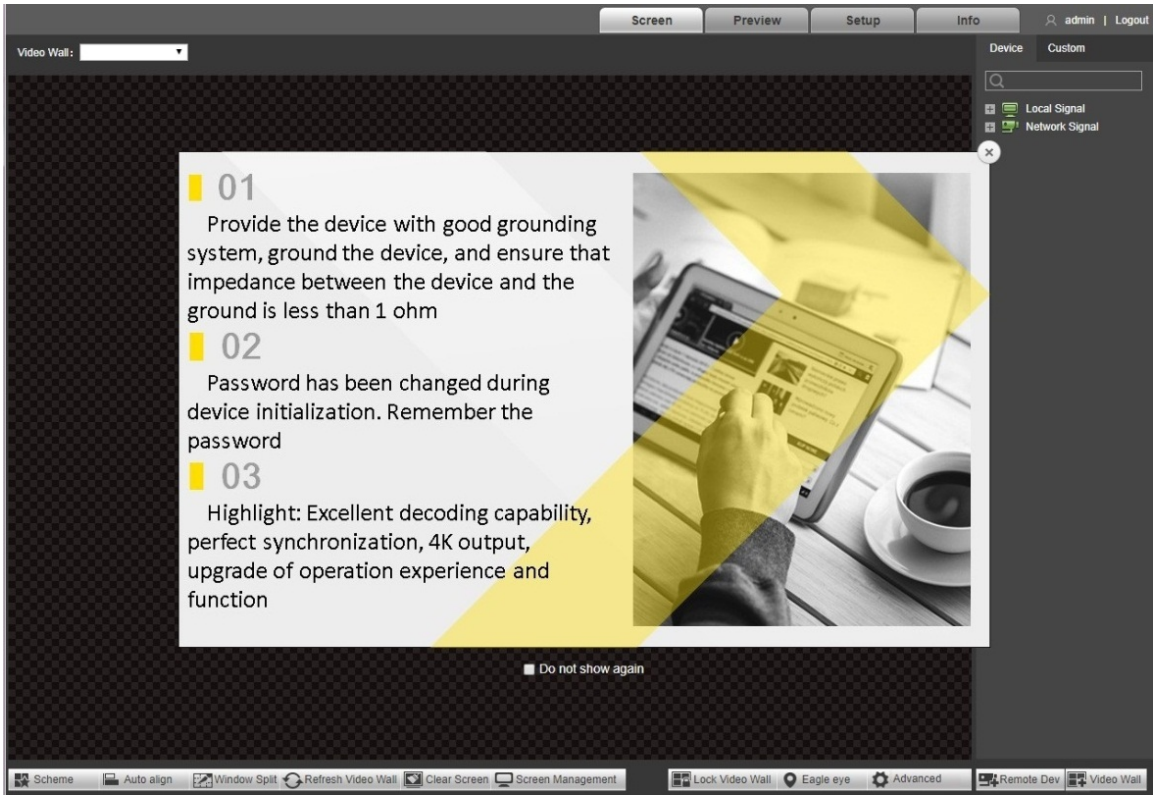
Step 4 Enter the username and the password, and then click **Login**.

Figure 6-2 Login



Step 5 View important points to be noted and highlights on this page.

Figure 6-3 Operation page



- Follow the important points noted on the page.
- Click to close the page.
- Select the **Do not show again** checkbox, and this window will not be displayed when you log in to the page the next time.

Step 6 Install or load controls as prompted by the system.

6.3 Screen

Click the **Screen** tab.

1-channel 4K high definition series and 4-channel 8K ultra high definition series do not support local signals.

Figure 6-4 Screen

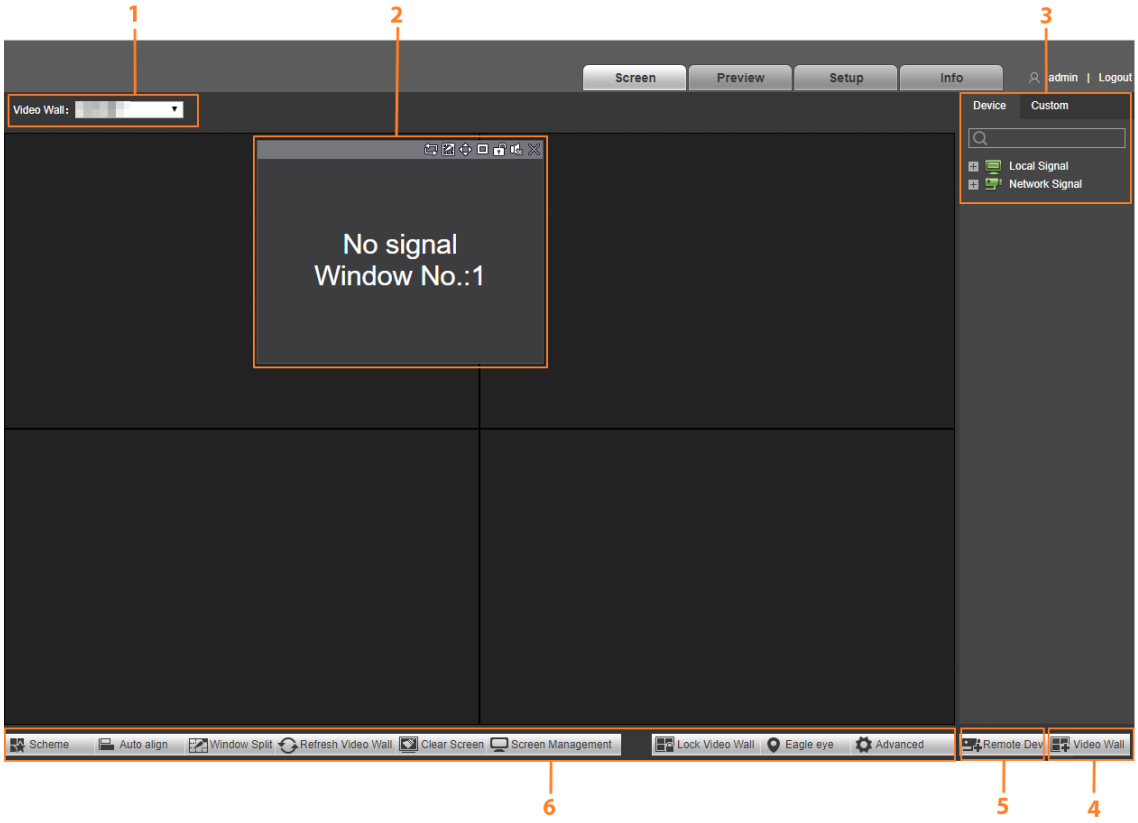


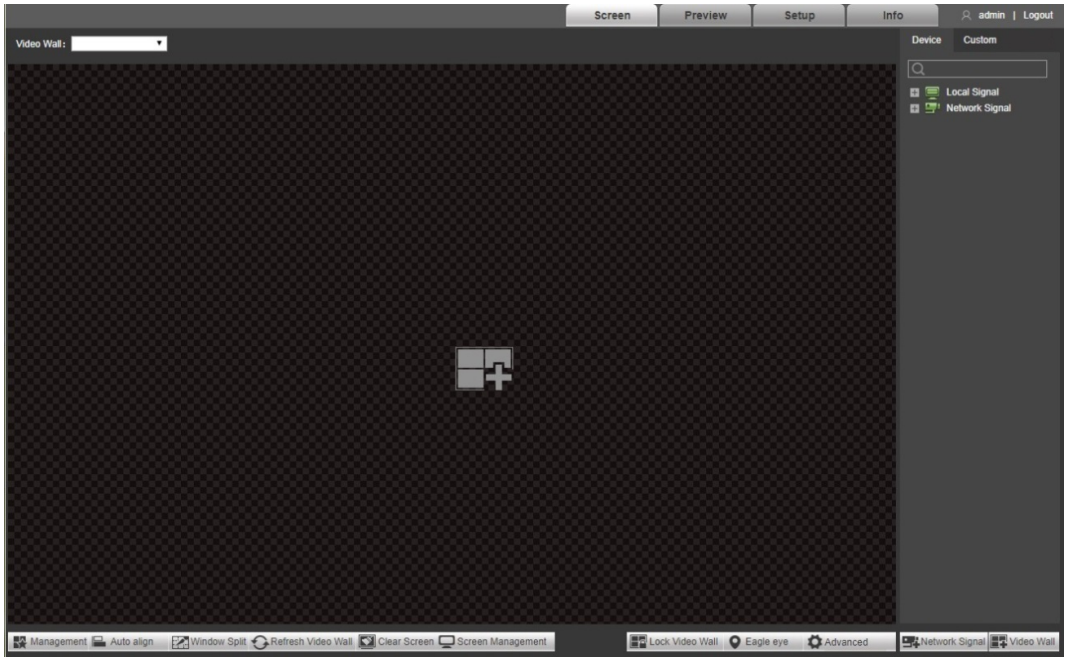
Table 6-1 Screen functions description

No.	Name	Description
1	Video wall selection area	After you add a video wall, you can select the video wall from the drop-down list of **Video Wall**.
2	Window configuration	You can turn off signals and add, adjust and put windows down at the bottom.
3	Signal management	Select different tabs to operate. ● Click the **Device** tab. You can view local signals, channel information and preview and display the signals on the video wall. ● Click the **Custom** tab. You can view information on signal groups and configure signal tour on the video wall.
4	Video wall	Click **Video Wall** to go to the **Video Wall Setup** page where you can add, modify, and delete video walls.
5	Remote device	Click **Remote Dev** to go to the **Network Signal** page where you can add, modify, and delete devices.
6	Video wall management	You can perform management and auto-align, split windows, refresh the video wall, clear the screen, access screen management, and lock and unlock the video wall.

6.3.1 Adding Video Walls

After you log in to the webpage for the first time, click to go to the **Video Wall Setup** page to add video walls.

Figure 6-5 Add a video wall

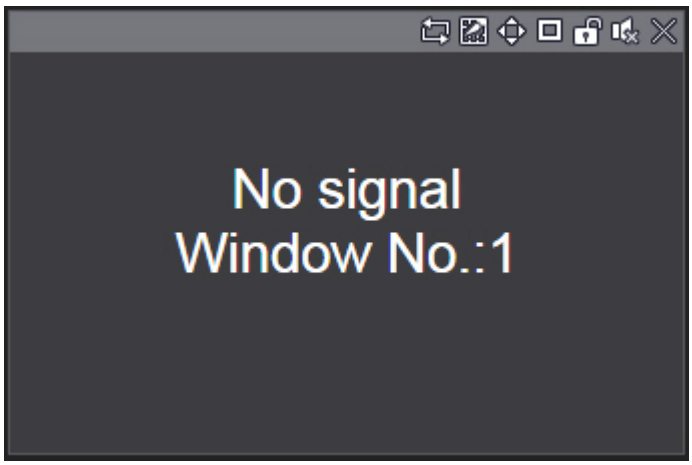


6.3.2 Window Configuration

6.3.2.1 Adding a Window

Click the video wall display area and move the pointer to add a window.

Figure 6-6 Adding a window



- Select a window, press and move the left mouse button. The selected window will be moved to the required position.
- Select a window, drag the control point in any direction to change the dimensions of the selected window.

- Select a window, right-click and select **Bottom**. The selected window will appear the bottom of other windows.
- Select a window that is displaying a signal, right-click and then select **Signal Off**. The signal will turn off.

6.3.2.2 Adjusting the Window

Click icons in the upper-right corner of the window to adjust the window.

Table 6-2 Description of window adjustment icons

Icon	Name	Description
	Start/stop signal tour	Click it to start signal tour, and the icon becomes . Click to stop signal tour.
	Split	You can split the window across 2 windows (horizontal/vertical), and also across 4, 9, 16, 25, and 36 windows. When the window is maximized or pasted to the screen, the icon becomes . Click the icon to drag the window anywhere.
	Paste screen	Click it to paste the window to the screen. For this, the dimensions of the window cannot be adjusted.
	Paste window	Click it, and then the window will be maximized without covering other windows.
	Lock	Click it to lock the window, and then the position and size of the window cannot be adjusted. Click to unlock the window.
/	Audio	Turn on or off audio. This function is reserved.
	Close	Close the window.

6.3.2.3 Configuring Window Information

Prerequisites

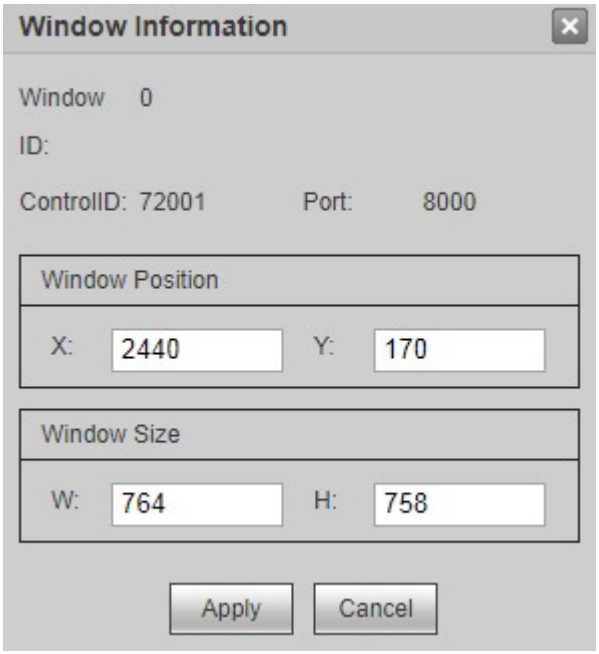
Manual setting window wide and height has been enabled.

Procedure

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Double-click the window.

Figure 6-7 Window information



Step 3 Configure window position and window size.

Step 4 Click **Apply**.

The window position and size is adjusted according to the configuration.

6.3.3 Signal Configuration

Select signals, or enter the name of the signal in the search box to search for signals.

6.3.3.1 Device Tree

The device tree displays all local signals and network signals that were added.

1-channel 4K high definition series and 1-channel 4K ultrahigh definition series do not support local signals.

- **Local Signal** : Displays local signal sources.
- **Network Signal** : Displays the sources of signals that were added.

6.3.3.2 Custom

The **Custom** tab displays groups that were added and the signal sources in groups. After you drag a signal group to a window, signals in the signal group are played in a loop.

6.3.3.3 Signal on Wall

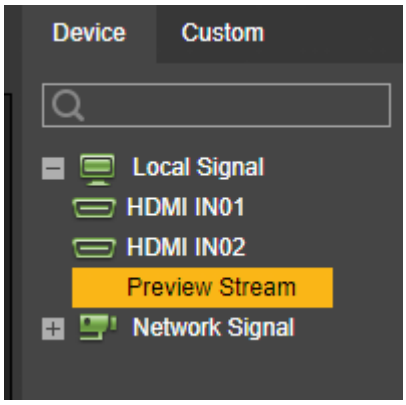
After you output a signal to a window on the video wall, you can view videos related to the signal on the video wall.

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select a window on the video wall, or press and hold the left mouse button to create a window on the video wall.

Step 3 Select a signal source from the **Device** or **Custom** tab. The following figure uses **Device** as an example.

Figure 6-8 Select a signal source



Step 4 Display the signal on the video wall.

- Press and hold the left mouse button to drag the signal to the designated window, and the signal will be output to the window.
- Select a window, double-click channel preview or main/sub stream, and the signal will be output to the window.

6.3.3.4 Signal Tour

After you drag a configured signal group to a window, the window plays signals in the group in a tour. You can set stay time and stream type as needed.

Prerequisites

You have configured a signal groups in **Collection**.

Procedure

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select a window to tour signals.

Step 3 Select **Custom** > **Collection**, select a signal group, and then press and hold left mouse button to drag the signal group to the designated window.

The window automatically starts to tour signals.

Step 4 Click at the bottom of the page.

Figure 6-9 Signal information

Step 5 Set **Stay Time** and **Stream Type**. The default stay time is 10 seconds.

- Click corresponding to a signal. The signal will not appear in the tour queue, but the signal group still exists.
- Click or to adjust signal tour sequence.
- The setting takes effect immediately.

- Click in the upper-right corner of window to stop signal tour.

6.3.4 Video Wall Management

Manage video wall through various functions, including **Scheme** , **Auto align**, **Window Split**, **Refresh Video Wall**, **Clear Screen**, **Screen Management**, **Lock Video Wall**, **Eagle eye**, and **Advanced**.

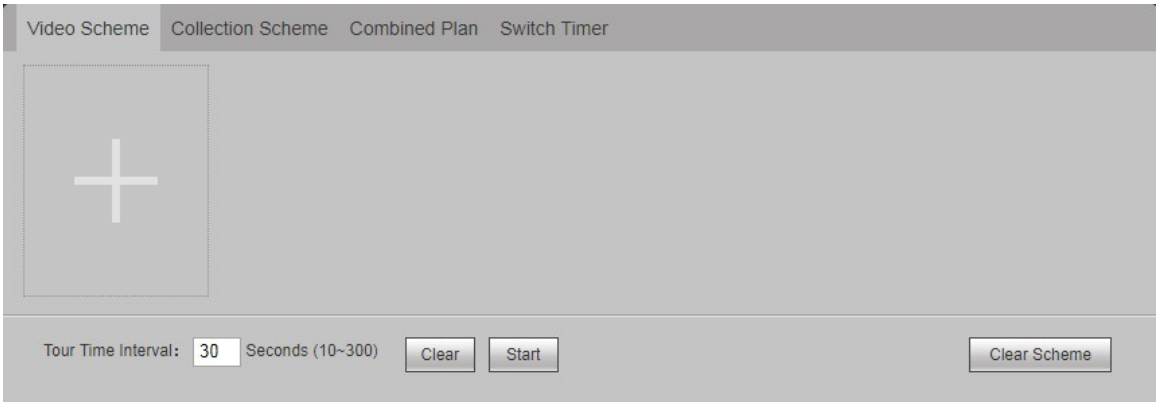
6.3.4.1 Video Scheme

You can save video layouts as video schemes. Then, you can play multiple video schemes in turn through configuration.

Step 1 Log in to the web page, and then click the **Screen** tab.

Step 2 Click Scheme.

Figure 6-10 Video scheme



Step 3 Click to save the scheme.

Step 4 Configure the current layout again, and repeat Step 2 to add more schemes.

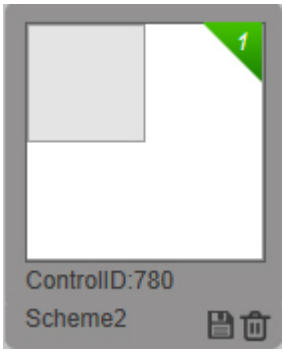
Click **Clear Scheme** to clear all schemes.

Step 5 Set tour time interval.

Step 6 Click in the upper- right corner of each scheme to add the scheme to tour queue.

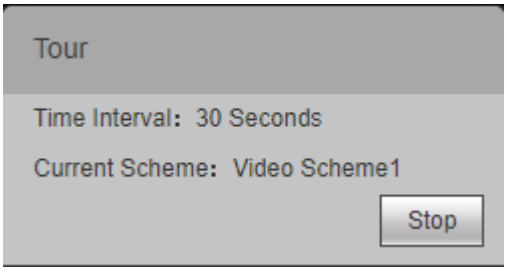
You can double-click **ControlID** and scheme name to modify the control ID and scheme name. Control IDs are used to differentiate schemes when devices issue commands.

Figure 6-11 Set tour sequence



Step 7 Click **Start**.

Figure 6-12 Tour information



- Click **Stop** to stop scheme tour.
- During scheme tour, video wall page cannot be operated.
- Click **Clear** to clear the whole scheme tour plan.

6.3.4.2 Scheme Management

You can manage video schemes, collection schemes, and combined schemes, and set the time to switch schemes.

6.3.4.2.1 Collection Scheme

Save virtual LED and background configuration to a collection scheme. Multiple collection schemes can be displayed on the video wall in turn.

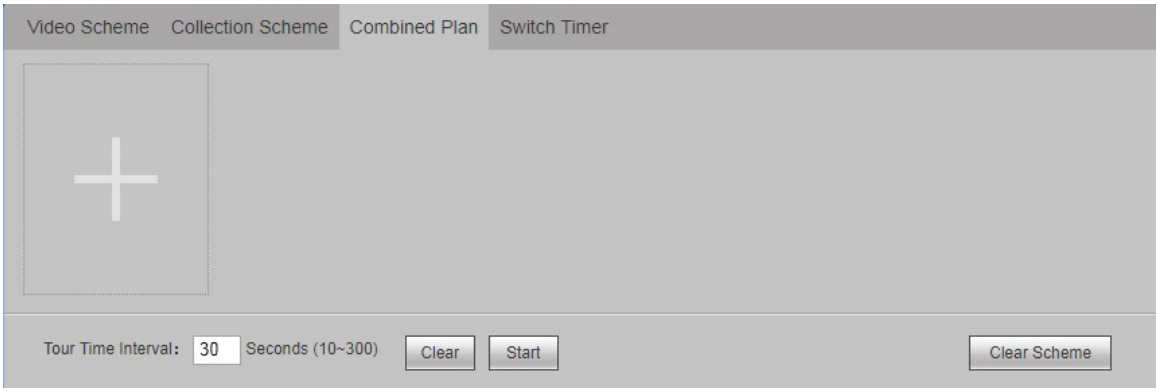
6.3.4.2.2 Combined Plan

According to your needs, combine the video scheme and collection scheme into a combined plan, and display it on the video wall.

Step 1 Log in to the webpage, and then click the **Screen** tab.

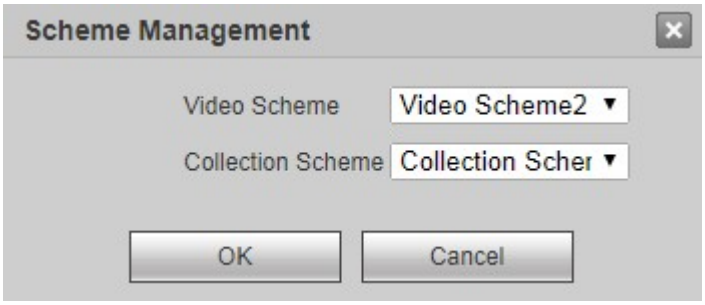
Step 2 Select **Scheme** > **Combined Plan**.

Figure 6-13 Combined plan



Step 3 Click to select a video scheme and a collection scheme.

Figure 6-14 Scheme management



Step 4 Click **OK** to save the combined plan.

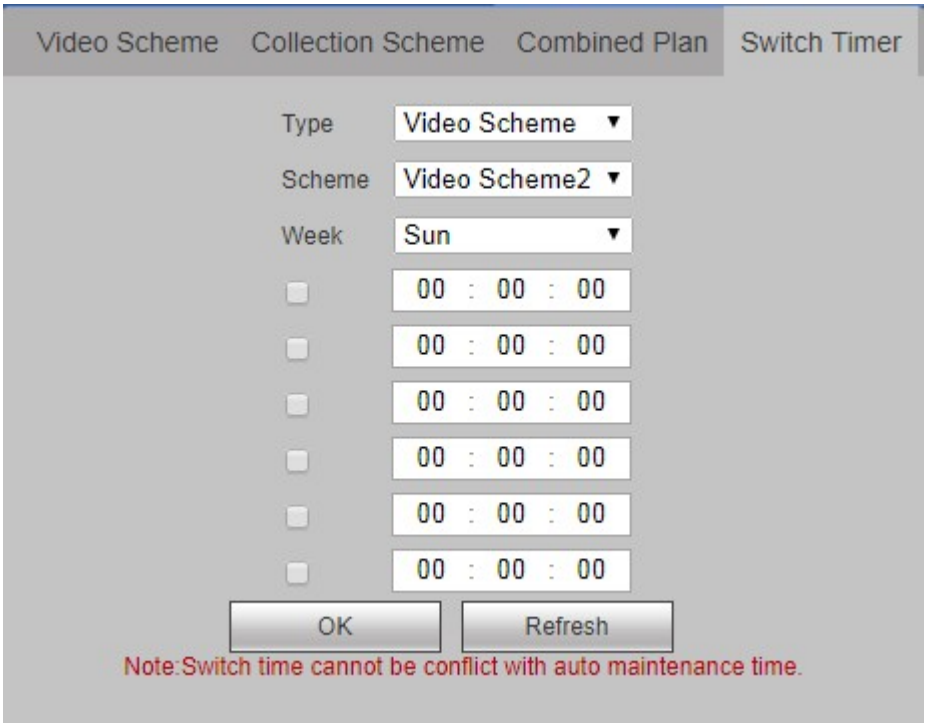
6.3.4.2.3 Switch Timer

After you set switch time for a scheme, the system automatically switches to the scheme when the switch time is reached.

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select **Scheme** > **Switch Timer**.

Figure 6-15 Switch timer



Step 3 Select **Type** , **Scheme** and **Week**, and then set switch time.

- Select the check box, and the time point will take effect.
- Two scheme time periods cannot be the same.

Step 4 Click **OK**.

6.3.4.3 Auto-align

Click **Auto align**. Then, all windows are automatically aligned in the following ways:

- The size of each window is equal, under the precondition of filling the entire video wall.
- Windows are arranged horizontally from top to bottom.

6.3.4.4 Splitting the Window

Select a block or a window. Then, you can split the block or window based on built-in or custom split plans.

6.3.4.4.1 Block Division

When you split a block, the system clears all windows in the block and splits windows based on the specified split number. After the block is split, original windows are closed and original signals are removed.

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select **Window Split** > **Block Division**.

Figure 6-16 Block division (1)

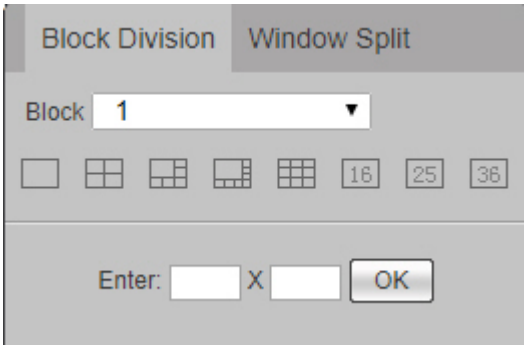
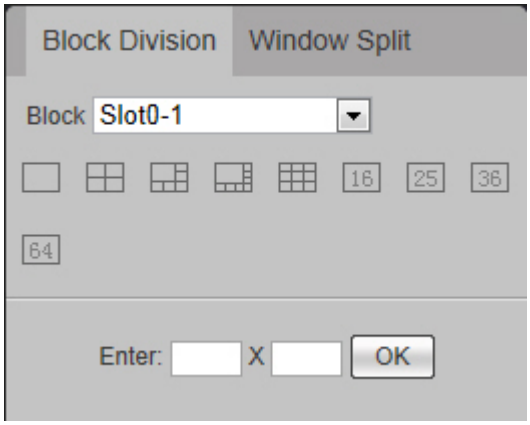


Figure 6-17 Block division (2)



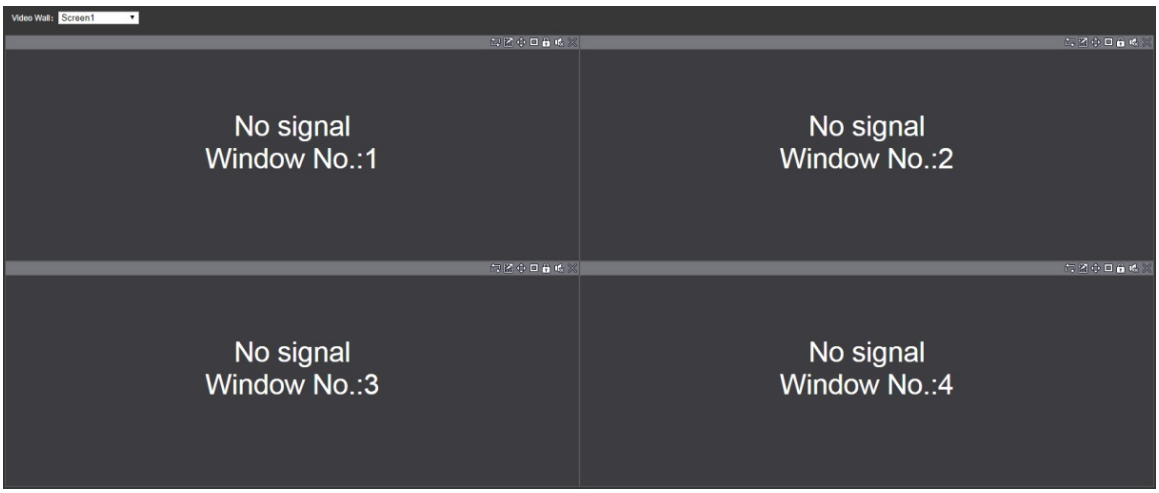
The page of 1-channel 4K high definition series is shown in Figure 6-17 . For other models, see Figure 6-16 .

Step 3 Select the fixed split or enter the split number manually (for example, 3×3 represents 9-split).

Only 1-channel 4K high definition (H.265) series support 64-split.

Step 4 Click **OK**.

Figure 6-18 Block division display



6.3.4.4.2 Window Split

Procedure

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select a signal window.

We recommend you do not split tour window.

Step 3 Select **Window Split** > **Window Split**.

Figure 6-19 Window split (1)

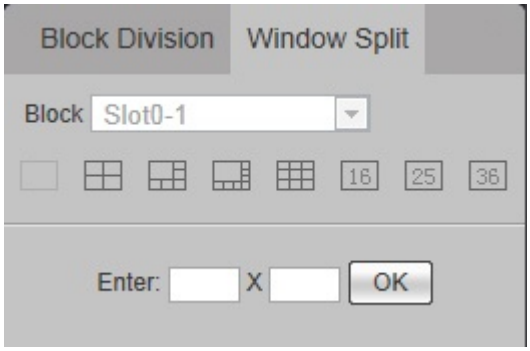
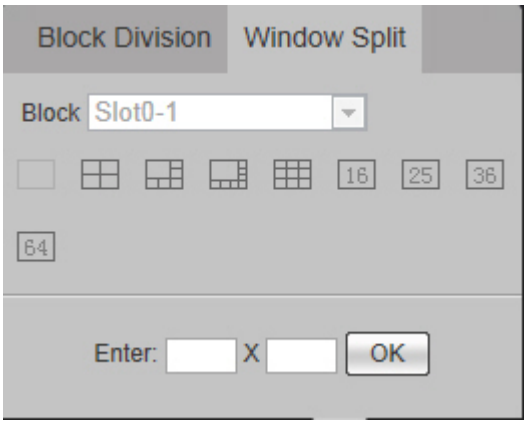


Figure 6-20 Window split (2)



The page of 1-channel 4K high definition series is shown in Figure 6-20 . For other models, see Figure 6-19 .

Step 4 Select the fixed split or enter the split number manually (for example, 3×3 represents 9-split).

Only 1-channel 4K high definition series support 64-split.

Step 5 Click **OK**.

Figure 6-21 Window split display

6.3.4.5 Refreshing Video Wall

Click **Refresh Video Wall** to refresh the channel preview and layout information of the current video wall.

6.3.4.6 Clearing Screen

Click **Clear Screen** to clear the screen.

6.3.4.7 Screen Management

You can manage the screen, including controlling screen power, controlling power switch and adjusting screen parameters.

- Only xx-LED-N protocol supports to control the power switch and adjust screen, whereas LED-CLT protocol only supports power switch function.
- 1-channel 4K high definition series does not support screen management function at present.

6.3.4.7.1 Screen Power

Procedure

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select a block from the drop-down list of **Block**.

Step 3 In the block, select one or more screens, and then click **ON** or **OFF** to turn on or turn off the screen.

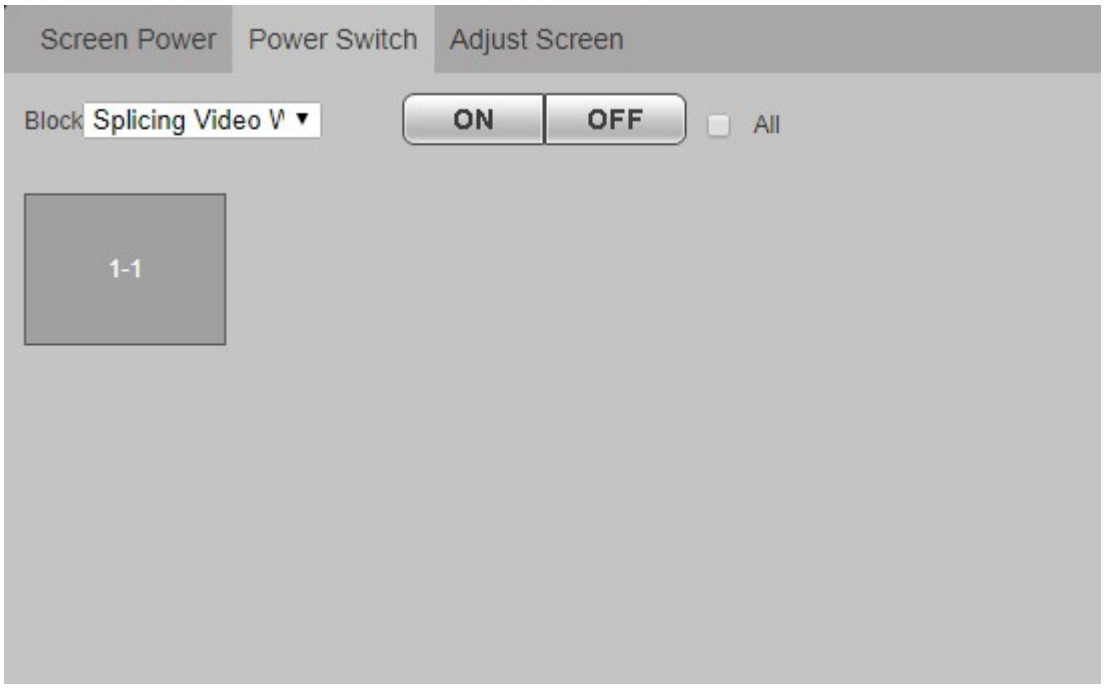
6.3.4.7.2 Power Switch

According to the requirement, connect the decoder with serial port cable of LED screen, to control the power of LED screen.

If manufacturer protocol is xx-LED-N or LED-CLT, video signal can be displayed on LED. When **Power Switch** tab is displayed in **Screen Management** page, the system can control LED power to turn on/off.

Select **Power Switch**.

Figure 6-22 Power switch

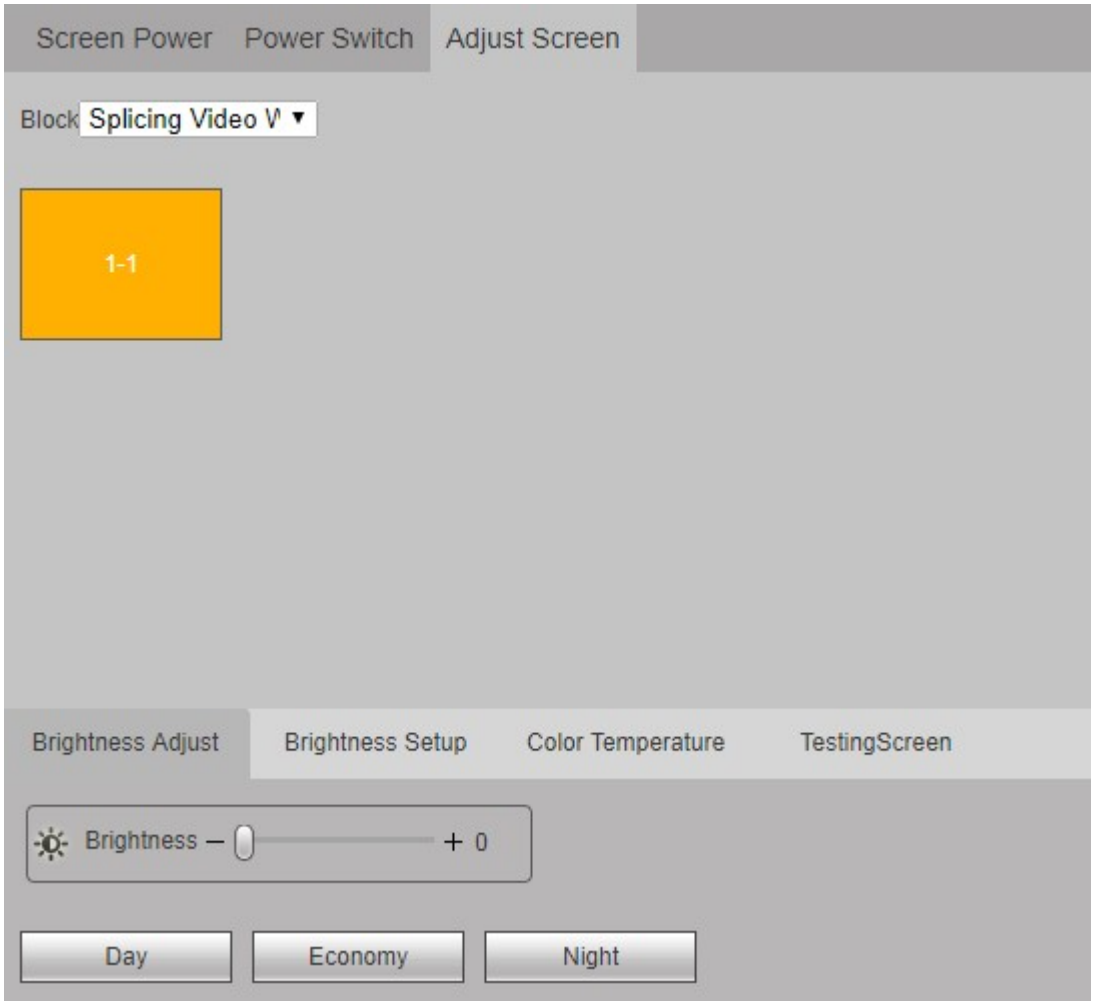


6.3.4.7.3 Adjusting Screen

You can configure brightness, color temperature and other parameters of LED corresponding to output signal, and adjust screen display.

If manufacturer protocol is xx-LED-N, the **Adjust Screen** tab is displayed in **Screen Management** page, so you can adjust LED parameters.

Figure 6-23 Adjust screen



6.3.4.8 Locking Video Wall

Click **Lock Video Wall** to lock the video wall. To unlock the video wall, click **Lock Video Wall** again.

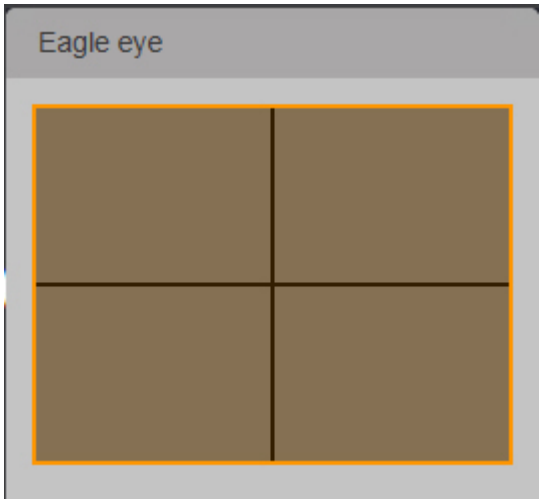
6.3.4.9 Eagle Eye

Eagle eye, also known as eagle eye map and thumbnail, is used to adjust display size and area of main window on the web screen.

Click Eagle eye.

Adjust area box size in the eagle eye map with mouse or scroll wheel, to change main window display area size. Drag area box position in the eagle eye map, to change main window display area.

Figure 6-24 Eagle eye



The page of 4-channel 8K ultrahigh definition (with 2 input ports) series, 6-channel 4K high definition (H.265, with 4 input ports) series and 9-channel 4K high definition (with 4 input ports) series are slightly different.

6.3.4.10 Advanced Function

You can configure advanced functions, including **PTZ Control** , **Virtual LED**, **Background**, **Decoding Strategy**, and **Show screenID**.

6.3.4.10.1 PTZ Control

PTZ control is to turn the PTZ device (up, down, left, right, top left, bottom left, top right and bottom right), carry out focus, zoom and iris operations.

Select display window unit of the signal, click Advanced, and then click .

Figure 6-25 PTZ control

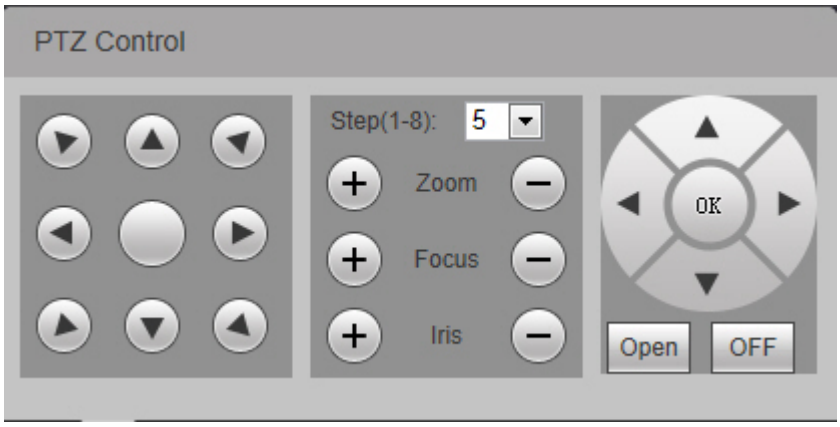


Table 6-3 PTZ control parameter description

Parameter	Description
Direction control	Control PTZ to turn in eight directions, including up, down, left, right, top left, bottom left, top right and bottom right.
Step	Control PTZ turning speed. 1–8 steps can be set.
Zoom	Click ⊕ or ⊖ to adjust zoom.
Focus	Click ⊕ or ⊖ to adjust definition.
Iris	Click ⊕ or ⊖ to adjust brightness.
PTZ menu	• Click Open to open PTZ menu of preview page. Then, select different functions with direction key, to operate PTZ. • Click OFF to turn off the PTZ menu of preview page.

6.3.4.10.2 Virtual LED

Divide a customized area on the video wall, enter any characters, and display them on the screen.

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Click **Virtual LED**.

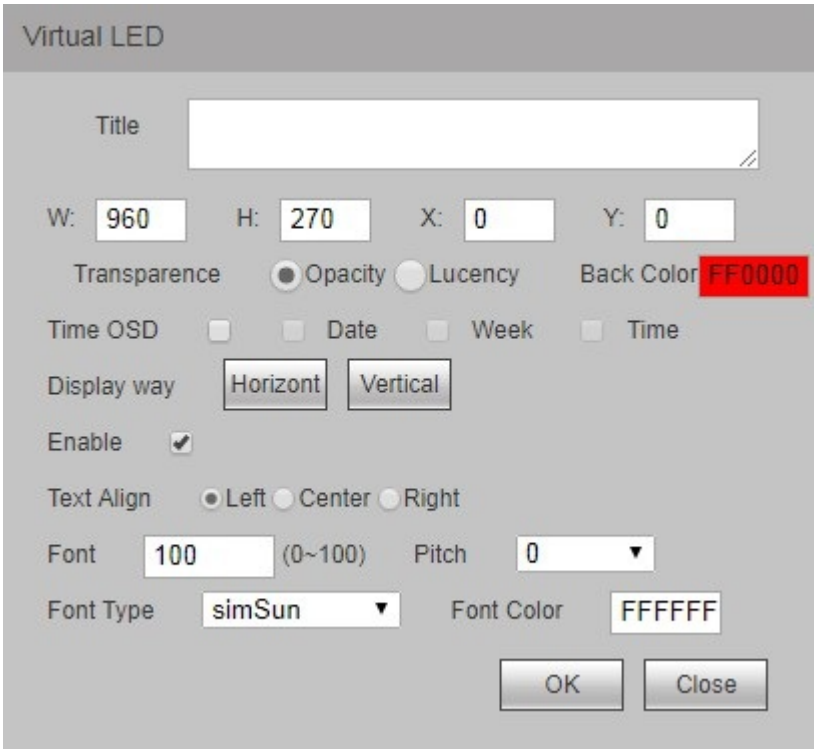
The system displays the virtual LED page.

The page of 1-channel 4K high definition series, 6-channel 4K high definition (with 4 input ports) series and 9-channel 4K high definition (with 4 input ports) series are slightly different.

Step 3 Click LED to add virtual LED.

The system displays **Virtual LED** page.

Figure 6-26 Virtual LED



Step 4 Configure the parameters.

Table 6-4 Virtual LED parameter description

Parameter	Description
Title	The title of virtual LED, which will be displayed on the video wall.
W/H	Width and height of virtual LED.
X/Y	Coordinates of virtual LED.
Transparence	Transparence of virtual LED.
Back color	Configure background color of virtual LED. You can enter 6-digit RGB value manually, or click the color area to select.
Time OSD	Select the left check box to enable the function. **Date** , **Week** and **Time** are displayed by default. Please select time display type according to your need. Select at least one item from **Date** , **Week** and **Time**.
Display way	Configure display way of the title, including **Horizontal** or **Vertical**.
Enable	Choose to display the title on video wall or not. • Select the check box and click **OK**. The title will be displayed on video wall. • Cancel selecting the check box, and then click **OK**. The title will be displayed on web, rather than video wall.

Parameter	Description
Text align	Configure alignment of the title against the background, including **Left** , **Center** and **Right**.
Font	Configure the title font from 0 to 100.
Pitch	Configure the title character distance from 0 to 5.
Font type	Configure the title font type, including **simSun** and **simHei**.
Font color	Configure the title color. You can enter 6-digit RGB value manually, or click the color area to select.

Step 5 Click **OK**.

Step 6 Virtual LED displays the title.

- Move your mouse onto virtual LED, press and hold left mouse button, and move. The virtual LED can be moved to other places.
- Click virtual LED, drag any direction control point to change the size of virtual LED.

Figure 6-27 Effect

6.3.4.10.3 Background

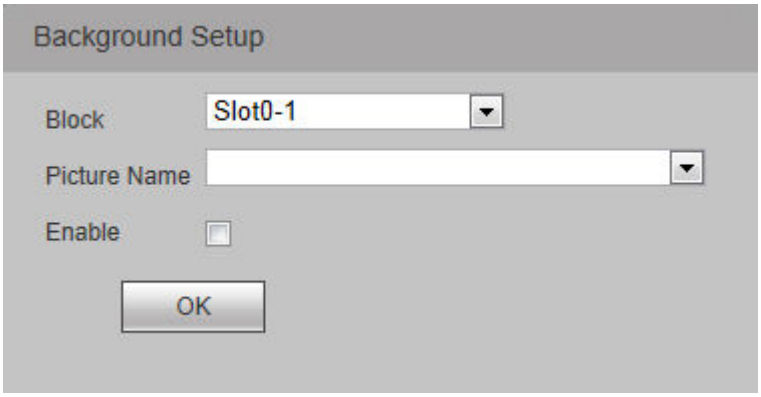
Upload a picture to the system, and configure it to be screen background, so the picture is displayed in the screen as a background.

Background can only be selected from pictures that have been uploaded to the system.

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Click Advanced, and then click Background.

Figure 6-28 Add background



1-channel 4K high definition series, 4-channel 8K ultrahigh definition (with 2 input ports) series, 6-channel 4K high definition (with 4 input ports) series and 9-channel 4K high definition (with 4 input ports) series are slightly different.

Step 3 Select **Block** and **Picture Name**, and select **Enable**.

Step 4 Click **OK**.

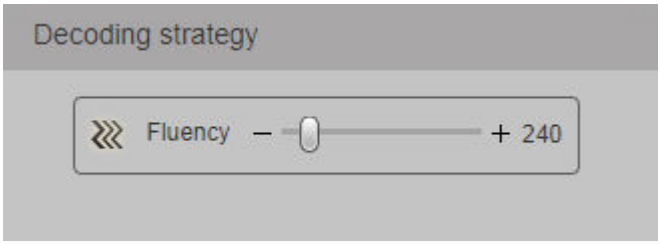
6.3.4.10.4 Decoding Strategy

Drag the slider to adjust window fluency, and thus balance real-time decoding and fluency (only network signal supports this function).

Procedure

Step 1 Select a network signal window, click Advanced, and then click Decoding strategy.

Figure 6-29 Decoding strategy



Step 2 Drag the slider to adjust window fluency.

Greater fluency value represents lower definition of the image and larger delay. Please set it according to actual conditions.

6.3.4.10.5 Show Screen ID

Click Show screenID to show screen ID on the video wall. Click it again to hide screen ID.

6.4 Preview

1-channel 4K high definition series and 4-channel 8K ultrahigh definition (with 2 input ports) series do not support local signal.

Click the **Preview** tab.

Figure 6-30 Preview

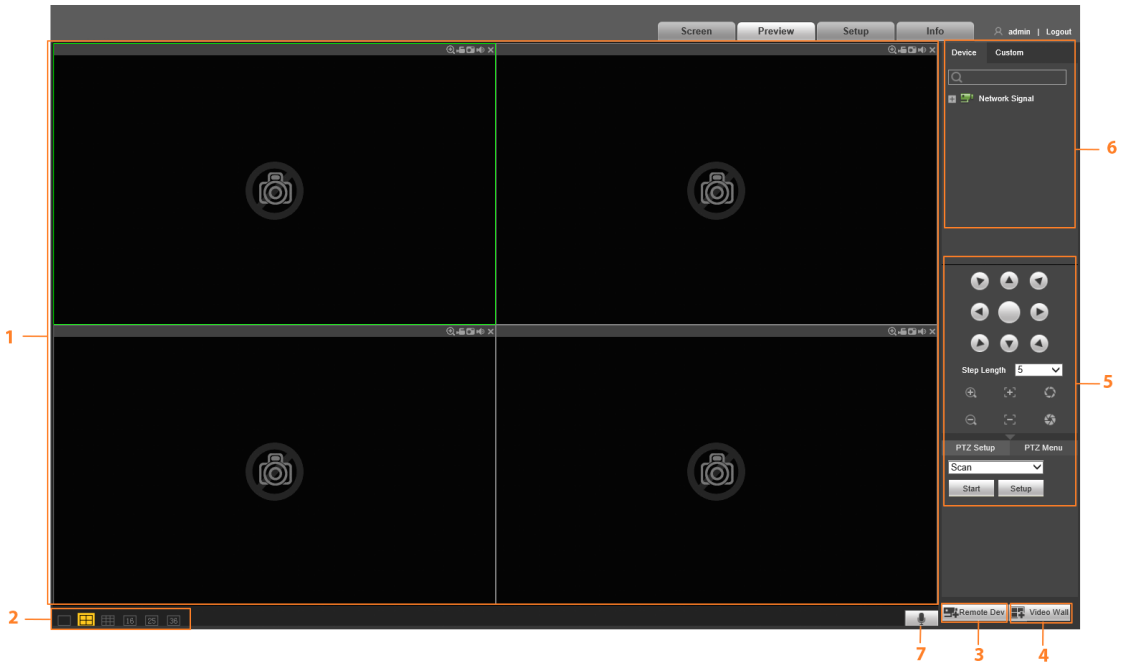


Table 6-5 Description of the preview page

No.	Name	Description
1	Window	Preview video in the window.
2	Window split	Carry out single split, 4-split, 9-split, 16-split, 25-split and 36-split of the window.
3	Remote device	Click **Remove Dev** to go to the **Network Signal** page. You can add, modify and delete devices.
4	Video wall	Click **Video Wall** to go to the **Video Wall Setup** page. You can add, modify and delete video wall.
5	PTZ control area	Operate cameras with PTZ function.
6	Signal configuration area	Configure signals.
7	Voice talk	You can talk with the client by connecting the decoder to a microphone. 4-channel 8K ultrahigh definition (with 2 input ports) series does not support this function.

6.4.1 Window Function

There are functions at the top right corner of the window.

Figure 6-31 Window function

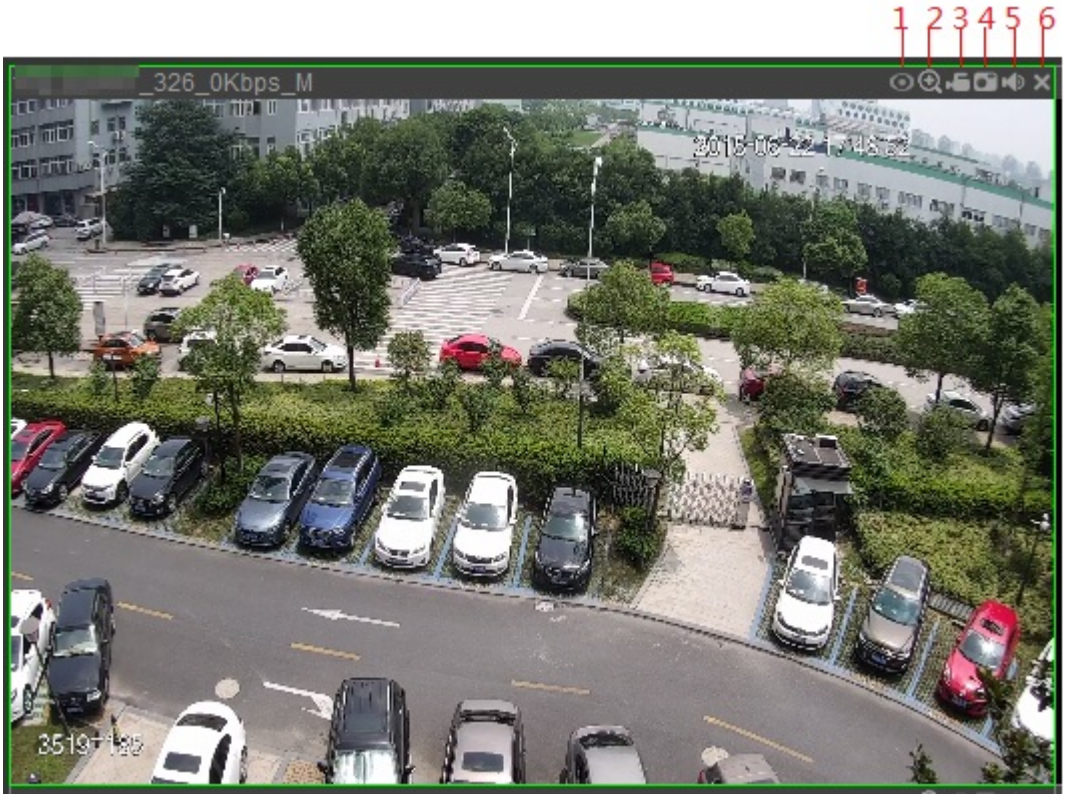


Table 6-6 Functional description

No.	Name	Description
1	Fisheye	It is not supported at present.
2	Partial zoom in	• When the video is in the original status, click the icon, press and hold the left mouse button to select any area. The selected area will be zoomed in. When the video is zoomed in, press and hold the left mouse button to drag the video image. Right-click to restore original status. • Click it to zoom in and zoom out the video image with the wheel button.
3	Local record	Record the video.
4	Snapshot	Take a snapshot.
5	Turn on Sound	Turn on the sound of the video.
6	Close Video	Close the window.

6.4.2 Signal Configuration

After adding a signal, you can view signal information or the added signal group information, and configure signal preview.

6.4.2.1 Device Tree

Device tree displays all the added network signals.

Network Signal : Displays the signal sources added on the **Remote Device** page.

6.4.2.2 Custom

You can customize signal group. The **Custom** tab displays added group and signal source. You can drag signal group to the window for loop play of signals in the group.

6.4.2.3 Image Preview

Add signal to preview window, so you can preview the video in preview window.

Procedure

Step 1 Select a preview window.

Step 2 Select signal source in **Device** or **Custom**, and click the signal source to preview image in the corresponding window.

6.4.3 PTZ Control Panel

PTZ control is used to adjust the direction of the PTZ device, carry out scan, preset point, point tour, pattern and other settings.

Figure 6-32 PTZ control

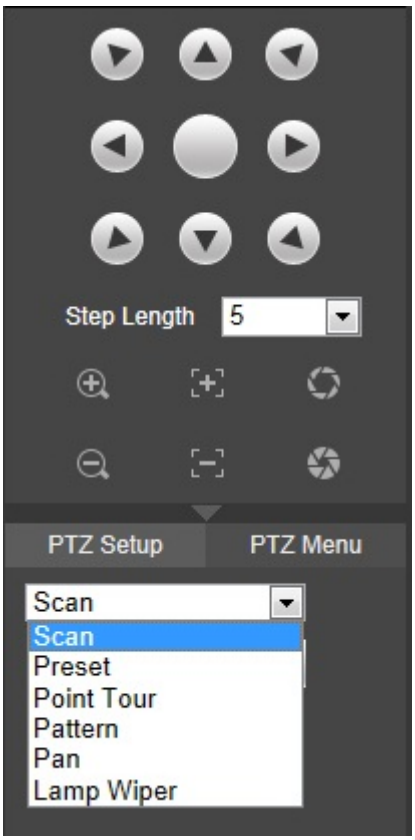


Table 6-7 PTZ parameters description

Parameter	Description
Scan	• Click **Setup** , turn the camera with direction buttons, and click **Set Left Border** and **Set Right Border** to set left and right borders of PTZ scan. • Click **Start** , and PTZ starts to scan. Click **Stop**, and PTZ stops scanning.
Preset	• Determine a point, and then click **Add** to add a preset point. • In the input box, enter the preset value, and then click **View** ; the camera moves to the location of preset point.
Point Tour	• Enter preset point number, and then click **Add** to add this preset point after the last preset point of this tour path. • In the input box, enter tour path, and click **Start** to start tour. Click **Stop** to stop tour.
Pattern	• Click **Add** , and you can configure a new pattern path with **Start Record** and **Stop Record**. • Enter the pattern value, and then click **Start** to start pattern. Click **Stop** to stop the pattern.
Pan	Click **Start** , and PTZ starts to pan. Click **Stop**, and PTZ stops panning.
Lamp Wiper	Click **Enable** to enable the lamp and wiper, and click **Disable** to disable the lamp and wiper.

6.5 Setup

6.5.1 System Configuration

On this interface, you can complete general setting, user management, configuration backup, automatic maintenance, system upgrade, picture management, fan control, common setup, safe management, and storage path.

6.5.1.1 General

You can configure basic information of the device, such as device information and system date.

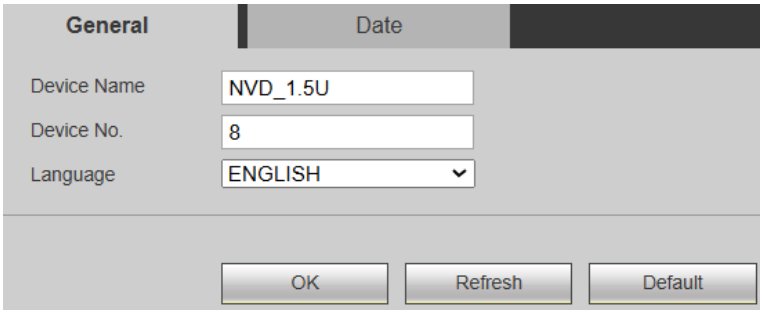
6.5.1.1.1 Setting of General Information

Set device name, device number, and more.

Procedure

Step 1 Select **Setup** > **System Config** > **General** > **General**.

Figure 6-33 General



Step 2 Configure the parameters.

Table 6-8 General parameters description

Parameter	Description
Device Name	Set device name. Device name is different depending on device model.
Device No.	Set device number.
Language	System language is determined by program package.

Step 3 Click **OK**.

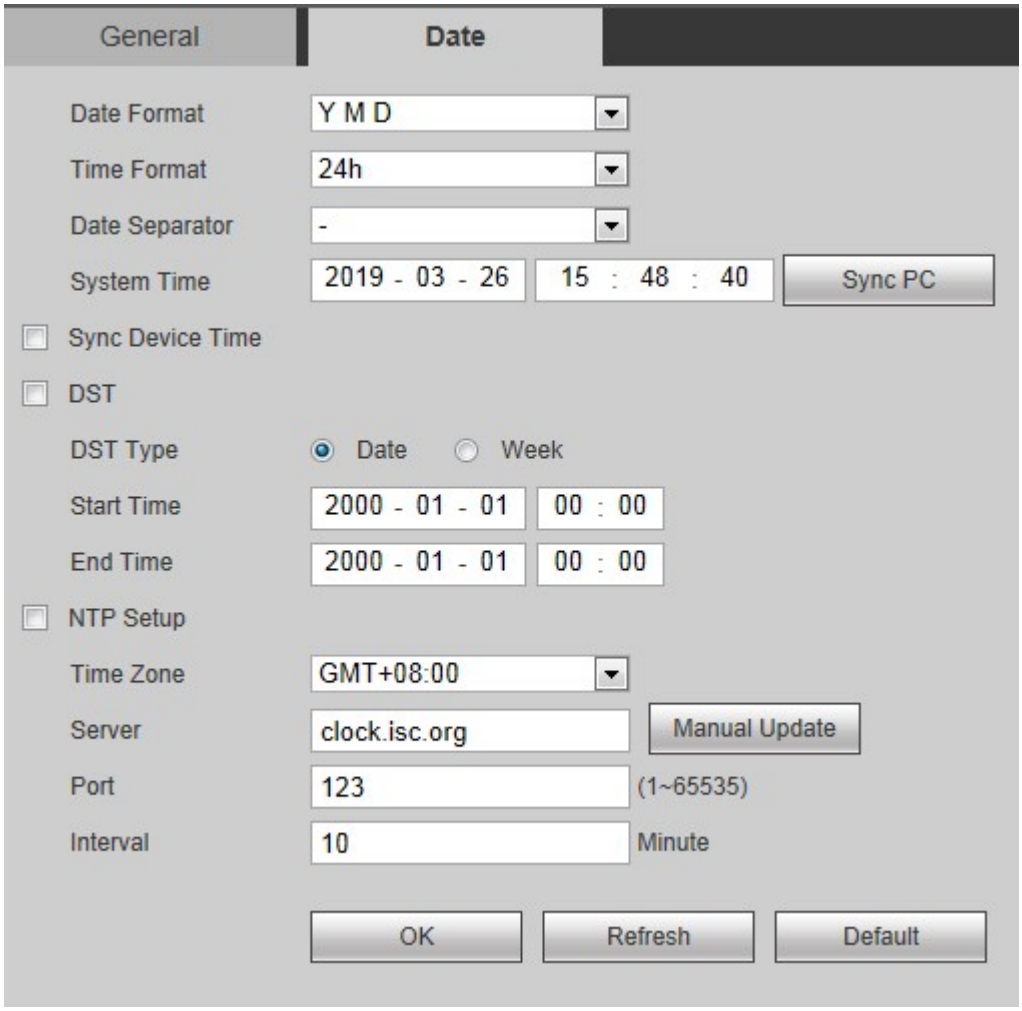
6.5.1.1.2 Date

You can configure the system date, and choose to enable NTP (Network Time Protocol) or not. After enabling NTP function, device can automatically synchronize time with the NTP server.

Procedure

Step 1 Select **Setup** > **System Config** > **General** > **Date**.

Figure 6-34 Date



Step 2 Configure parameters.

Table 6-9 Date parameters description

Parameter	Description
Date Format	Select date display format you want.
Time Format	Select time format you want.
Date Separator	Select date separator you want.
System Time	Set system time. Click **Sync PC** to synchronize with current PC time.
Sync Device Time	Select the check box to enable function to synchronize remote device time.
DST	Select the check box to enable DST.
DST Type	Select DST type, including **Date** and **Week**.
Start Time/End Time	• When DST Type is Date, enter year, month, day, start time and end time. • When DST Type is Week, select month, week, start time and end time from the drop-down list.
NTP Setup	Select the check box to enable NTP sync function.

Parameter	Description
Time Zone	Select time zone.
Server	Enter server address or domain name.
Port	Enter the port number of NTP server.
Interval	Set the interval to update NTP server.

Step 3 Click **OK**.

6.5.1.2 User Management

User management adopts two-level management mode: user and user group. You can manage their basic information (only those with user management permission can operate user management).

- User name and group name support maximum 6 characters and can only consist of letter, number, and underline (_).
- The password can be set from 8 through 32 non-empty characters and contains at least two types from capital letters, lower-case letters, numbers, and special characters (excluding "'", """, ";", ":" and "&"). The user with permission can change their own password, but also change the password of other users.
- The system supports a maximum of 64 users and 20 user groups by default.
- There are two-level management modes: user and user group. Group name and user name shall be unique. One user can only belong to one group.
- Current user cannot modify their own permission.
- During initialization, there is 1 default user "admin". Admin is defined as high-permission user by default.

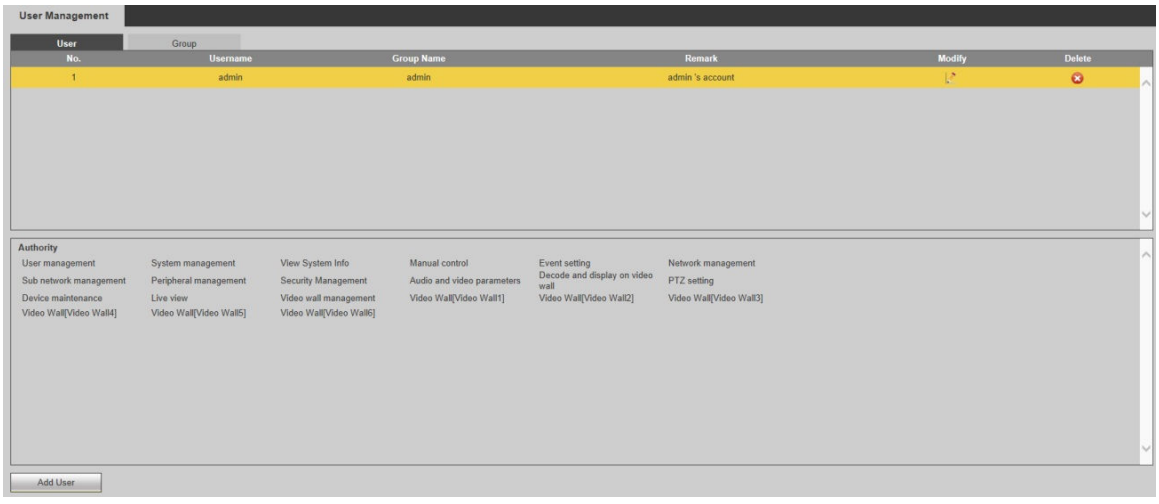
6.5.1.2.1 User

You can manage user information. Add, modify and delete user, change user password.

The permission list might vary depending on device model.

Select **Setup** > **System Config** > **User Management** > **User Management** > **User**.

Figure 6-35 User



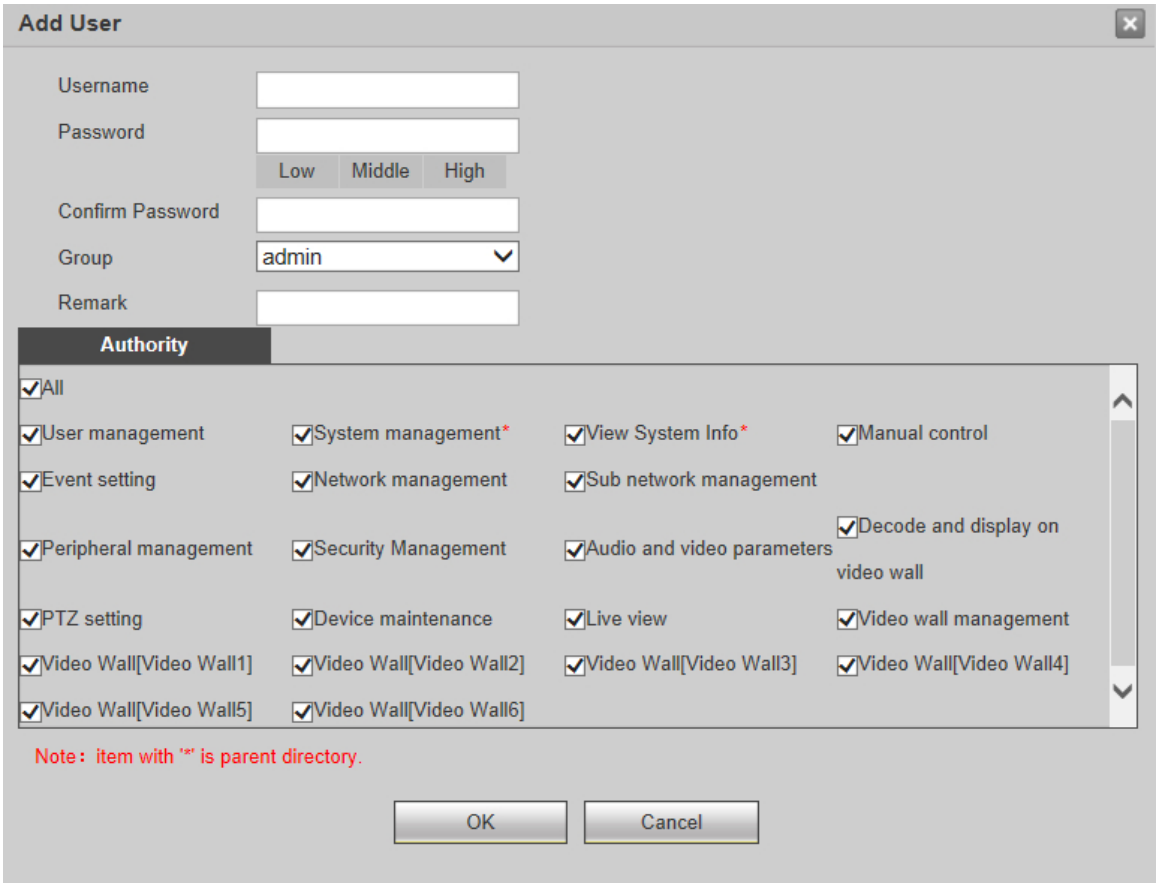
Adding User

Add one user to the group, and configure user permission control.

Admin enjoys the highest-level permission, and cannot be deleted.

1. Click **Add User**.

Figure 6-36 Add user



2. Enter username, password, confirm password and note, and then select group.

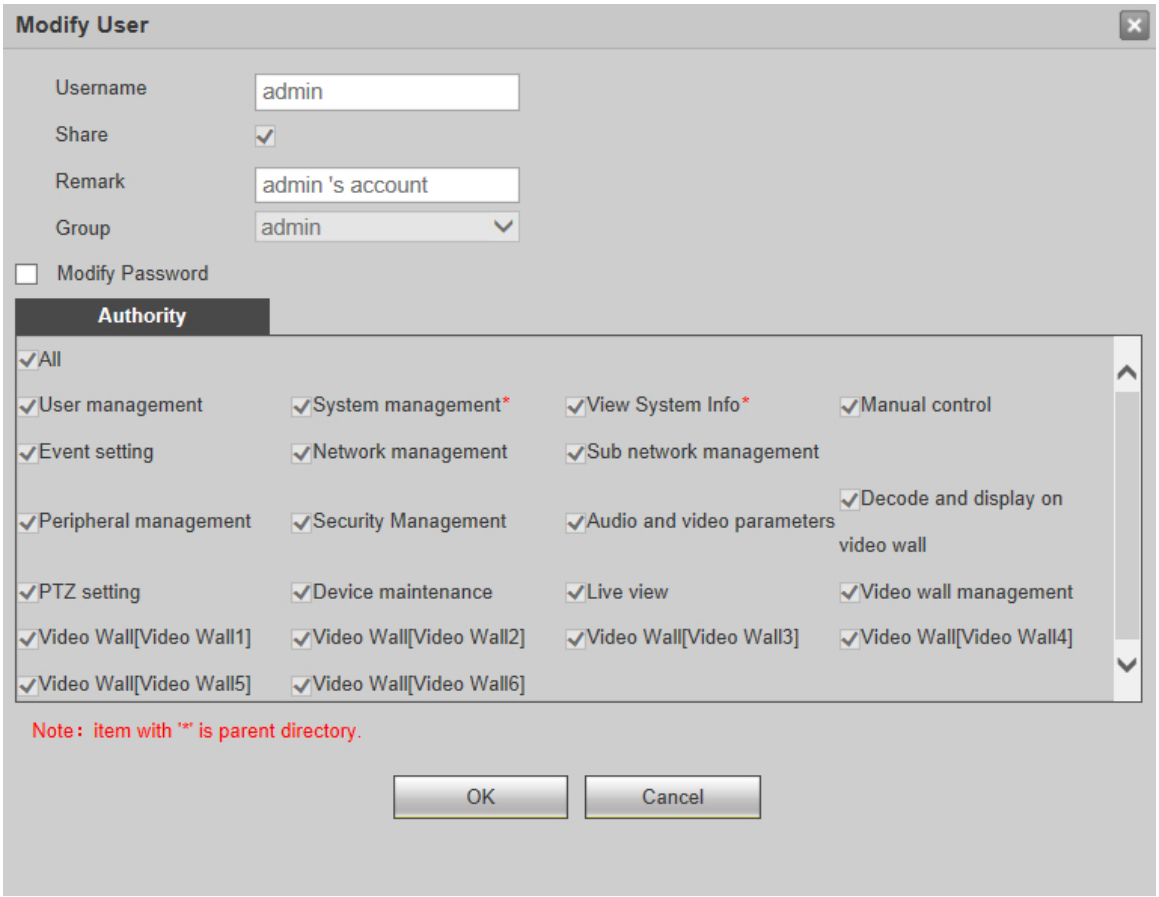
   - When selecting a group for a user, authority of the user can only be a subset of the group, and should be no higher than the group authority.
   - To conveniently manage the user, it is suggested that general user authorities shall be lower than high-level user authorities.

3. In the **Authority** list, select operating authorities for the user.
   - Select the check box to enable the authority.
   - Select **All** to select all authorities.
4. Click **OK**.

Modify User

1. Click corresponding to the user you want to modify.

Figure 6-37 Modify user



2. Modify user information.

   Default user can only modify password, rather than other information.
3. Click **OK**.

Modifying Password

1. Click corresponding to the user you want to modify.
2. Select **Modify Password**.
3. Enter old password, new password and confirm password.
4. Click **OK**.

Deleting User

Click corresponding to the user you want to delete.

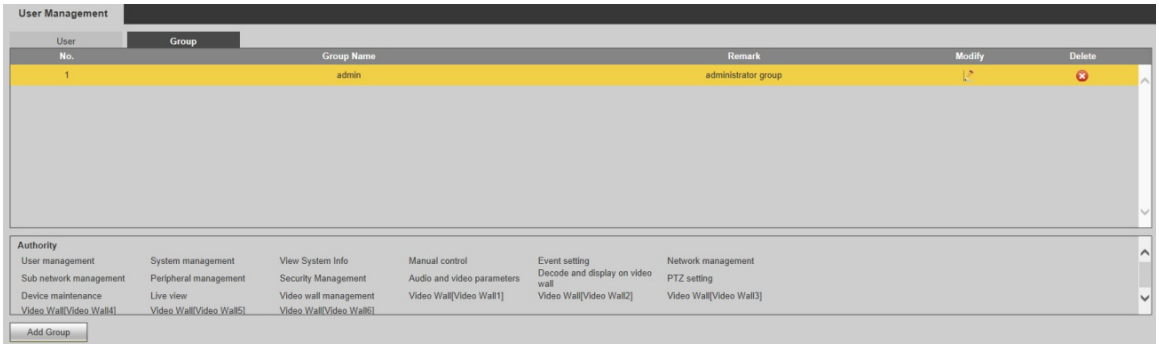
6.5.1.2.2 Group

Different users might have different authorities to access the device. You can divide the users with the same authority into one group. It is easy for you to maintain and manage the user information. You can manage group information. Add and delete group, and modify group password.

Select **Setup** > **System Config** > **User Management** > **User Management** > **Group**.

The **Authority** list is different depending on device model.

Figure 6-38 Group



6.5.1.3 Configuring Backup

The configuration file of network video decoder can be exported to flash drive for backup. When the network video decoder goes wrong, you can import configuration file to restore configuration quickly.

Select **Setup** > **System Config** > **Config Backup**.

Figure 6-39 Configure backup

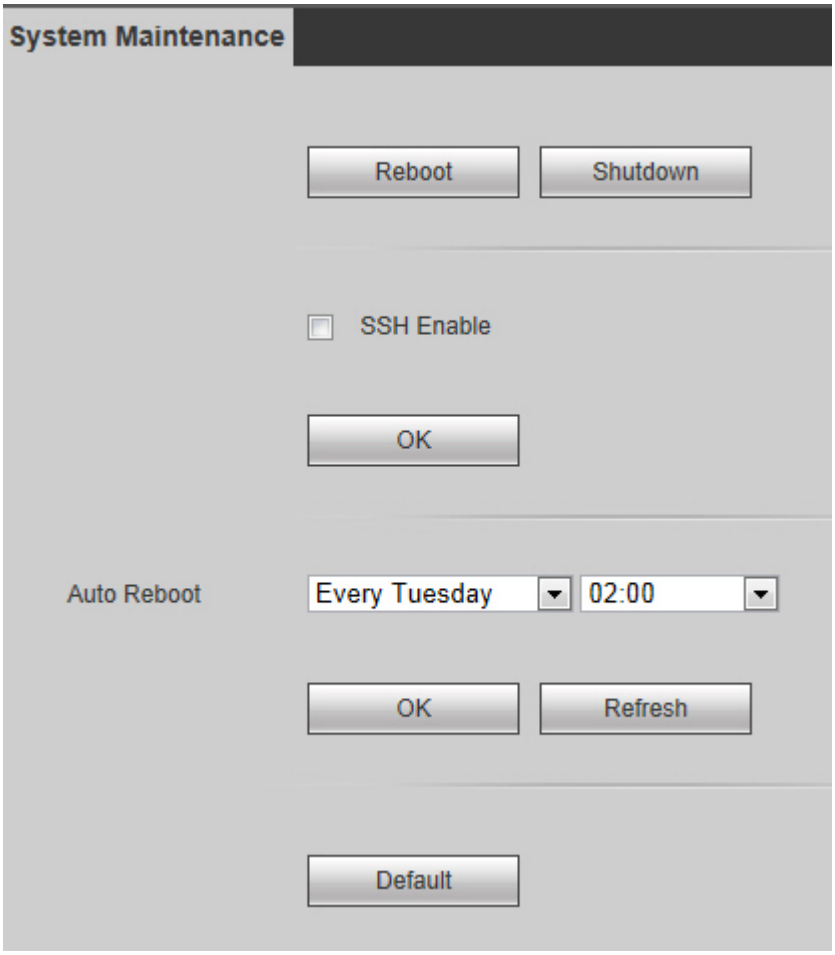
- Click **Import Config**, and then select configuration file (.backup) to import the configuration file.
- Click **Export Config**, and then select storage path to export configuration file for backup.

6.5.1.4 Auto Maintenance

You can maintain and operate the system, including reboot, shutdown, SSH enable, auto reboot and default.

Select **Setup** > **System Config** > **Auto Maintenance** > **System Maintenance**.

Figure 6-40 System maintenance



- To manually reboot the system, click **Reboot** , and the system will reboot at once. Click **Shutdown**, and the system will be shut down at once.
- SSH is used to open background debugging port for technicians. Select **SSH Enable** , and click **OK** to enable remote debugging function.
- To reboot the system automatically, select auto reboot day and time, and then click **OK**.
- Click **Default**. The system will be restored to the factory default settings, and your current configurations will be lost. Be cautious.

6.5.1.5 System Upgrade

Store upgrade file in PC that is associated with network video decoder. You can import upgrade file to upgrade the system version.

Procedure

Step 1 Select **Setup** > **System Config** > **System Upgrade**.

Figure 6-41 System upgrade

Step 2 Click **Import**, and then select the upgrade file.

Step 3 Click **Upgrade**. There is progress bar during upgrade.

After upgrade file is uploaded according to system prompt, the device will reboot. Please keep the power supply on, wait patiently, until the system is automatically rebooted.

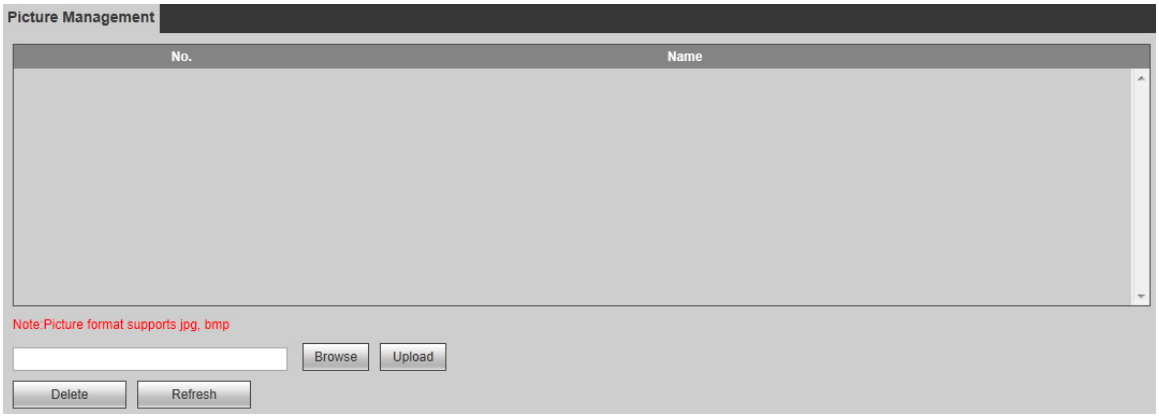
6.5.1.6 Picture Management

You can upload a picture to the system, and set the uploaded picture to be screen background.

Procedure

Step 1 Select **Setup** > **System Config** > **Picture Management**.

Figure 6-42 Picture management



Step 2 Click **Browse** to select a local picture.

Step 3 Click **Upload** to upload local picture.

- Select one picture, and then click **Delete** to delete the picture.
- After the background is uploaded successfully, select the background in video wall configuration.

6.5.1.7 Fan Control

You can configure fan temperature control and buzzer alarm.

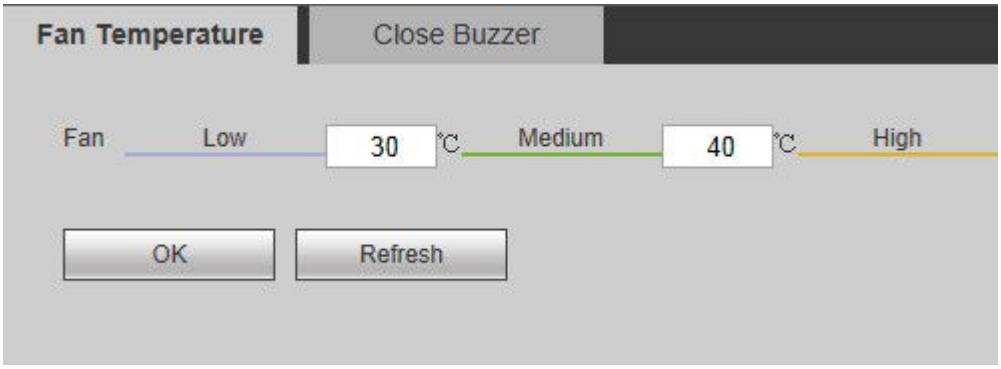
1-channel 4K high definition series, 6-channel 4K high definition (with 4 input ports) series and 9-channel 4K high definition (with 4 input ports) series do not support this function.

6.5.1.7.1 Fan Temperature

You can configure different temperature ranges in light of fan speed. The system will trigger different fan speed levels according to the temperature ranges.

Select **Setup** > **System Config** > **Fan Control** > **Fan Temperature**.

Figure 6-43 Fan control–Fan temperature



There are three levels: low speed, medium speed, and high speed. Different temperature ranges correspond to different speeds.

6.5.1.7.2 Close Buzzer

You can configure buzzer time. In case of alarm, the system will beep continuously according to the set time. You can close buzzer according to your need.

Procedure

Step 1 Select **Setup** > **System Config** > **Fan Control** > **Close Buzzer**.

Figure 6-44 Fan control–Close Buzzer

Step 2 Configure time setup.

Step 3 Click **OK**.

Click **Close Buzzer** to close the buzzer alarm function.

6.5.1.8 Comm Setup

After comm parameters are set, the network video decoder can connect other devices through comm ports, for the purpose of debugging and operation.

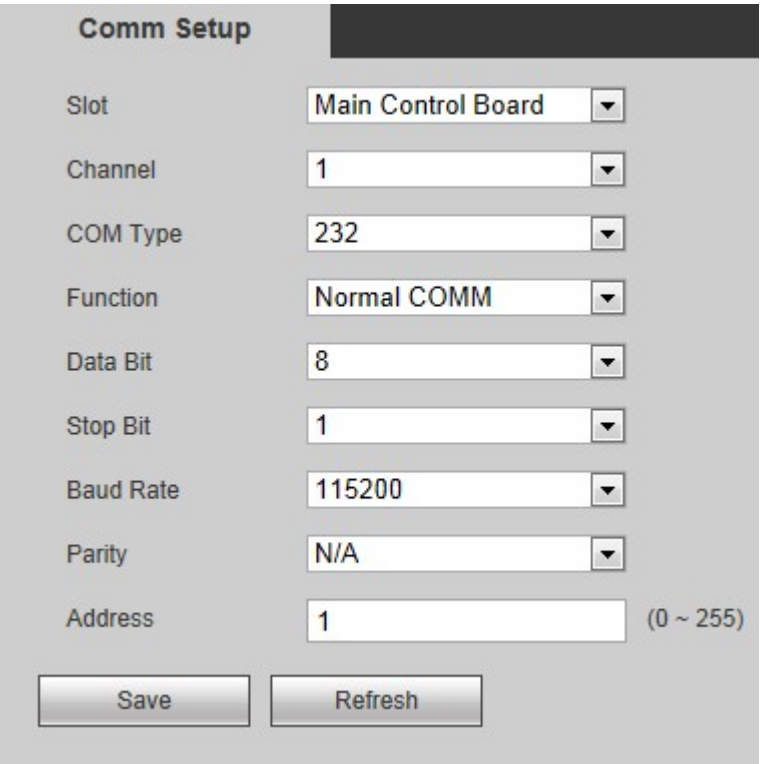
Background Information

1-channel 4K high definition series does not support this function.

Procedure

Step 1 Select **Setup** > **System Config** > **Comm Setup**.

Figure 6-45 Comm setup



Step 2 Configure the parameters.

Table 6-10 Common parameters description

Parameter	Description
Slot	Select the slot that you want to configure.
Channel	Select the channel that you want to configure.
Com Type	The default is RS-232.
Function	Configure comm function.
Data Bit	Select a data bit. The options include 5, 6, 7 and 8.
Stop Bit	Select stop bit of comm, including 1 and 2.
Baud Rate	Configure Baud rate of comm. It shall be consistent with the device that will be connected.
Parity	Select a parity mode from N/A, Odd, Even, Flag Parity and Empty Parity.
Address	Configure comm address from 0 to 255.

Step 3 Click **Save**.

6.5.1.9 Security Management

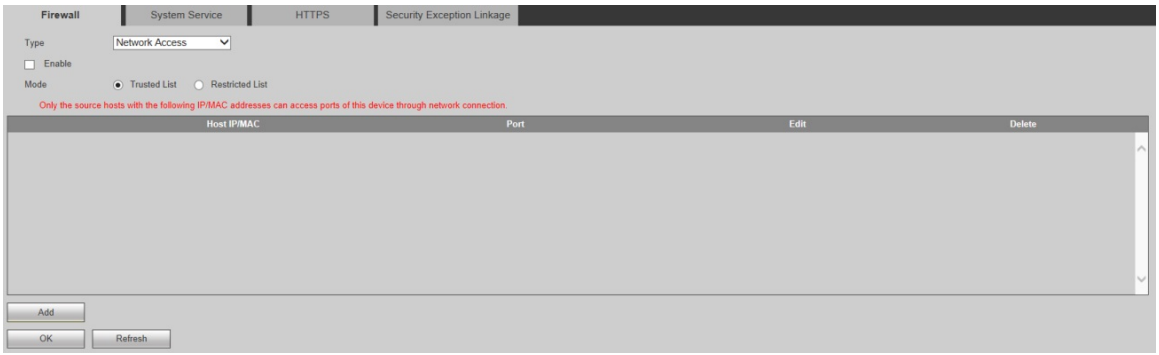
Configure system service, enable or disable HTTPS function according to your need, to strengthen system security management.

6.5.1.9.1 Firewall

Select the firewall that you want to enable.

Step 1 Select **Setup** > **System Config** > **Security Management** > **Firewall**.

Figure 6-46 Firewall



Step 2 Select **Type**. Three types are available at present:

- Network Access: Configure the firewall by adding trusted list and restricted list.
- Forbid Ping: After it is enabled, all network access will be forbidden.
- Semi Join: Prevents half-open SYN attacks.

Step 3 Select **Enable**.

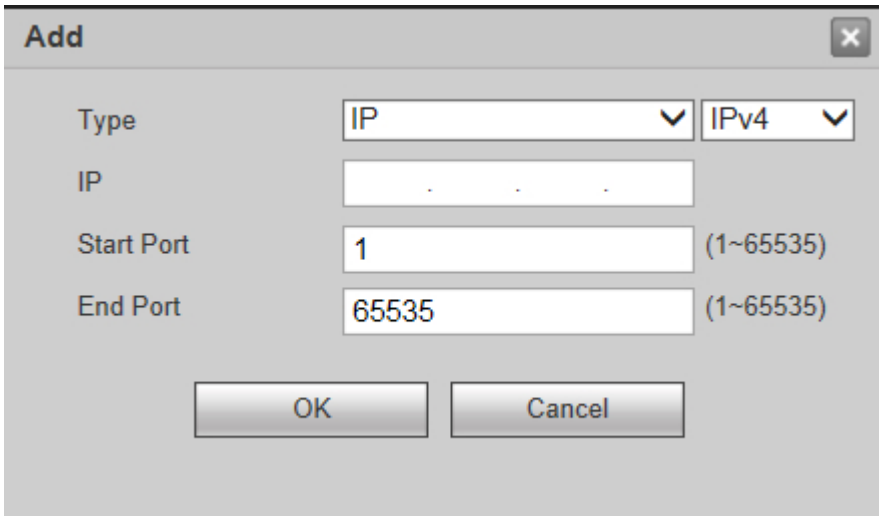
Step 4 (Optional) Select **Mode**, and configure trusted list and restricted list.

- Trusted list: Only source hosts with the configured IP/MAC address can access the device port through network connection.
- Restricted list: Source hosts with the configured IP/MAC address are forbidden from accessing the device port through network connection.

- It can be configured only in **Network Access** type.
- Trusted list and restricted list can be configured in the same way. Take trusted list for example.

1. Select **Trusted List** in **Mode**.
2. Click **Add**.

Figure 6-47 Add



3. Select **Type** , and then configure **IP**, **Start Port** and **End Port**.

   Type supports **IP** , **IP Segment** and **MAC Address**. Configure parameters according to actual situation.
4. Click **OK**.

Figure 6-48 Added

- Click to edit device information.
- Click to delete the device.

Step 5 Click **OK**.

The system prompts "Saved successfully".

Click **Refresh**. The system prompts that "Operation is successful", and the page is refreshed.

6.5.1.9.2 System Service

Select the system service you want to enable.

Step 1 Log in to the webpage.

Step 2 Select **Setup** > **System Config** > **Security Management** > **System Service**.

Figure 6-49 System service

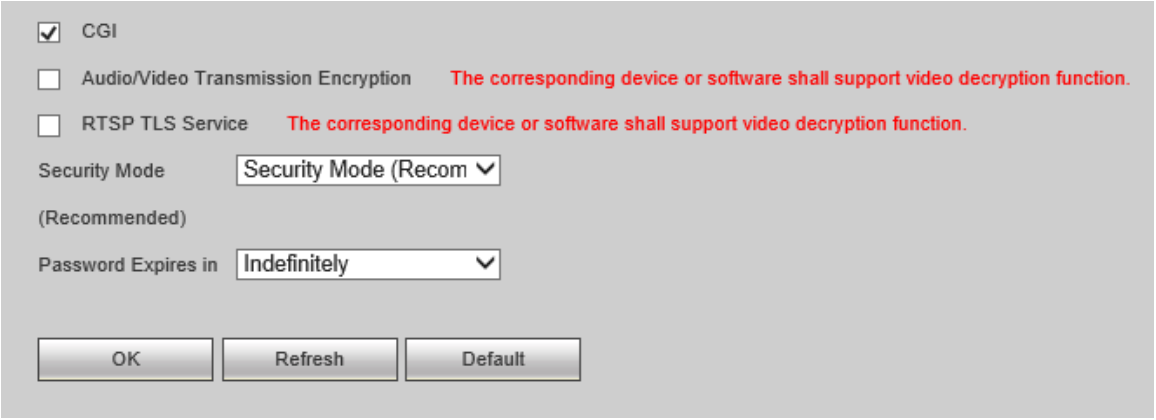
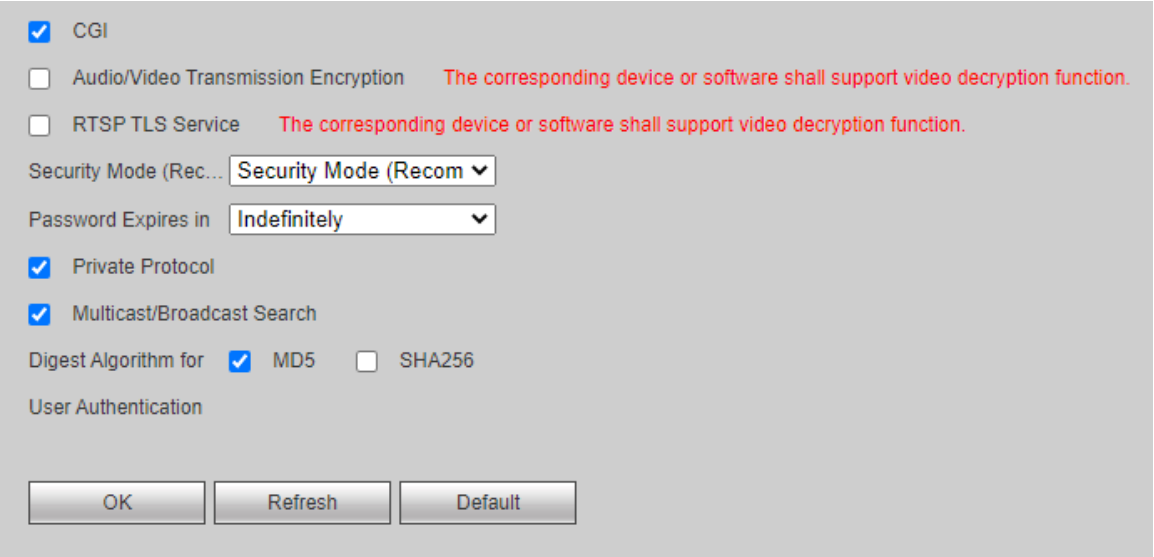


Figure 6-50 6-channel Ultrahigh Definition Series, 6-channel Ultrahigh Definition Series (with 2 Input Ports), 9-channel Ultrahigh Definition Series and 9-channel Ultrahigh Definition Series (with 4 Input Ports) system service



Step 3 Enable system service.

Table 6-11 System service parameters description

Parameter	Description
CGI	Common Gateway page (CGI) is an interface between external application programs and web server.
Audio/Video Transmission Encryption	Encrypt the video during transmission. Audio encryption is not currently supported.
RTSP TLS Service	Encrypt before requesting video service from video server.
Security Mode	We recommend you select **Security Mode** . **Compatible Mode** has potential security risks.
Password Expires in	Set the interval to update the password.

Step 4 Click **OK**.

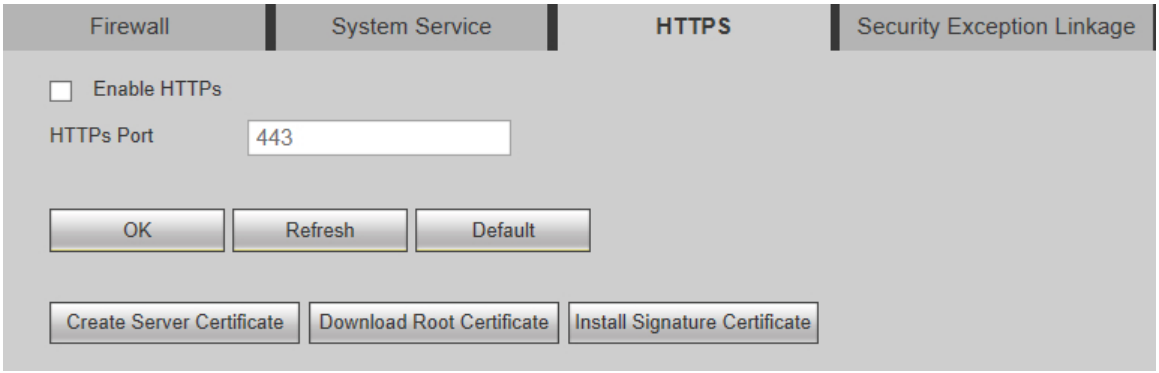
- Click **Refresh** to clear unsaved data.
- Click **Default** to restore to default settings.

6.5.1.9.3 HTTPS

Through creating server certificate or downloading root certificate on the HTTPS page, you can log in to the PC by HTTPS, to ensure the security of communication data, and guard the users' information and device security with stable technology measure.

Step 1 Select **Setup** > **System Config** > **Security Management** > **HTTPS**.

Figure 6-51 HTTPS



Step 2 Select the **Enable HTTPs** check box.

Step 3 Configure HTTPs port.

Step 4 Click **OK**.

- For the first time to use this function or after changing IP address of the device, you need to create server certificate again.
- For the first time to use HTTPS after changing the PC, you need to download root certificate again.
- If a local signature certificate already exists, click **Install Signature Certificate**.
- HTTPS enable status will take effect after reboot.

Figure 6-52 Create server certificate

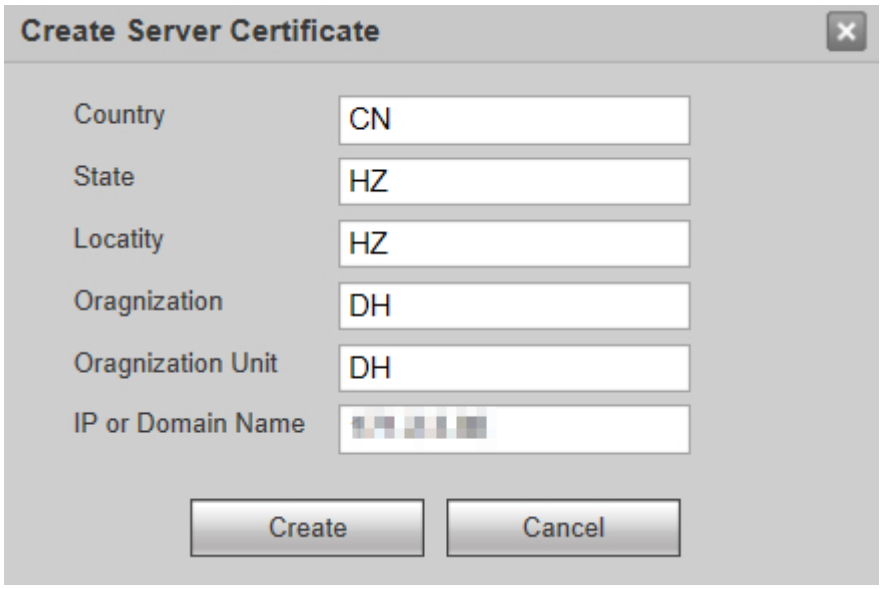
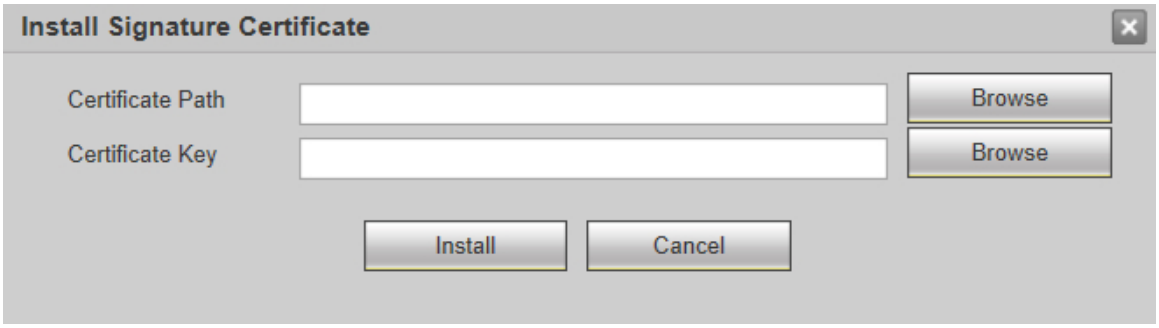


Figure 6-53 Install signature certificate

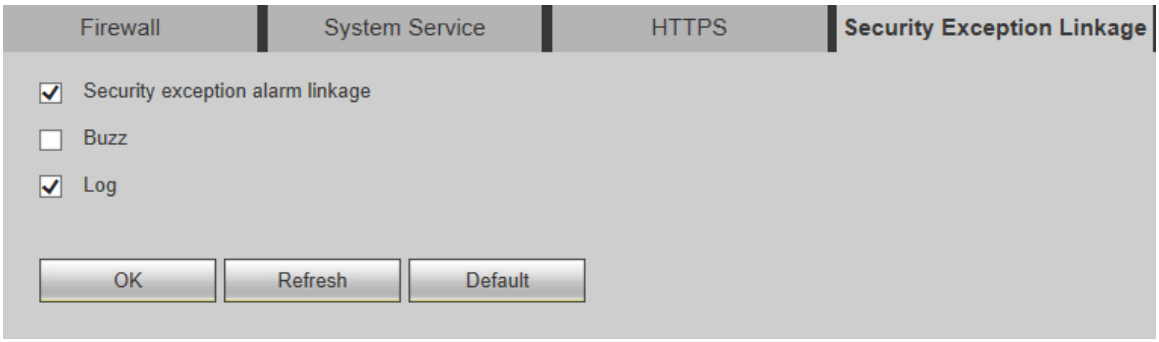


6.5.1.9.4 Security Exception Linkage

Configure alarm linkage mode.

Step 1 Select **Setup** > **System Config** > **Security Exception Linkage**.

Figure 6-54 Security exception linkage



Step 2 Select **Security exception alarm linkage** to enable it.

Step 3 Select alarm linkage mode, including **Buzz** and **Log**.

Both alarm linkage modes can be selected at the same time.

Step 4 Click **OK** to complete configuration.

6.5.1.9.5 Static ARP Bind

The Address Resolution Protocol (ARP) binding function allows certain devices on a LAN to be bound to fixed IP addresses. In this way, other devices cannot use the IP addresses, which allow you to manage devices on the network with ease.

Procedure

Step 1 Log in to the webpage.

Step 2 Select **Setup** > **System Config** > **Security Management** > **Static ARP Bind**

Step 3 Set **IP** and **MAC Address**.

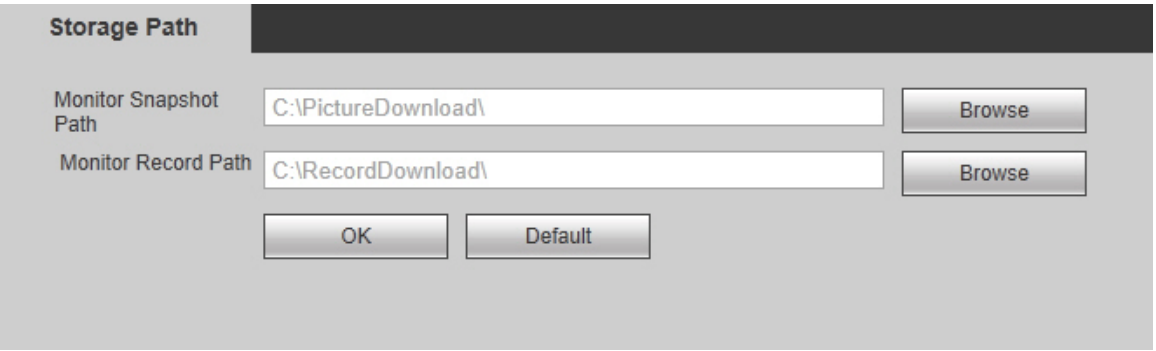
Step 4 Click **OK**.

6.5.1.10 Storage Path

Select the storage path for snapshots and records.

Step 1 Select **Setup** > **System Config** > **Storage Path**.

Figure 6-55 Storage path



Step 2 Click **Browse** to select the storage path for snapshots and records respectively.

Step 3 Click **OK**.

Click **Default** to restore default path. Default storage path of monitor snapshot and monitor record is C:\PictureDownload and C:\RecordDownload respectively.

6.5.2 Network

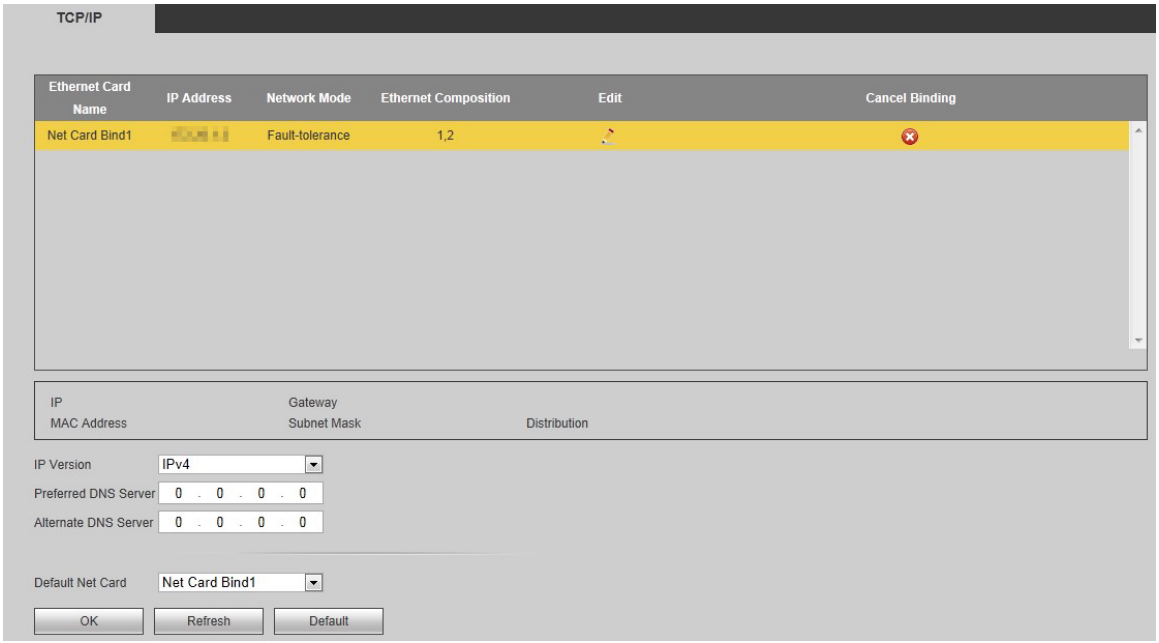
6.5.2.1 TCP/IP

Set device IP address, DNS server information and other information according to network planning.

- Before configuring network parameters, make sure that the device is connected to the network properly.
- If there is no routing device in the network, distribute IP address on the same network segment.
- If there is a routing device in the network, you only need to configure gateway and subnet mask.

Step 1 Select **Setup** > **Network** > **TCP/IP**.

Figure 6-56 TCP/IP



Step 2 Set TCP/IP parameters.

Table 6-12 TCP/IP parameters description

Parameter	Description
IP Version	Select **IP version**. It is IPv4 by default.
Preferred DNS Server	Fill in the configured IP address of DNS server.
Alternate DNS Server	Fill in the configured IP address of alternate DNS server.
Default Net Card	Select default net card.

Step 3 Click to edit Ethernet card information.

Figure 6-57 Edit

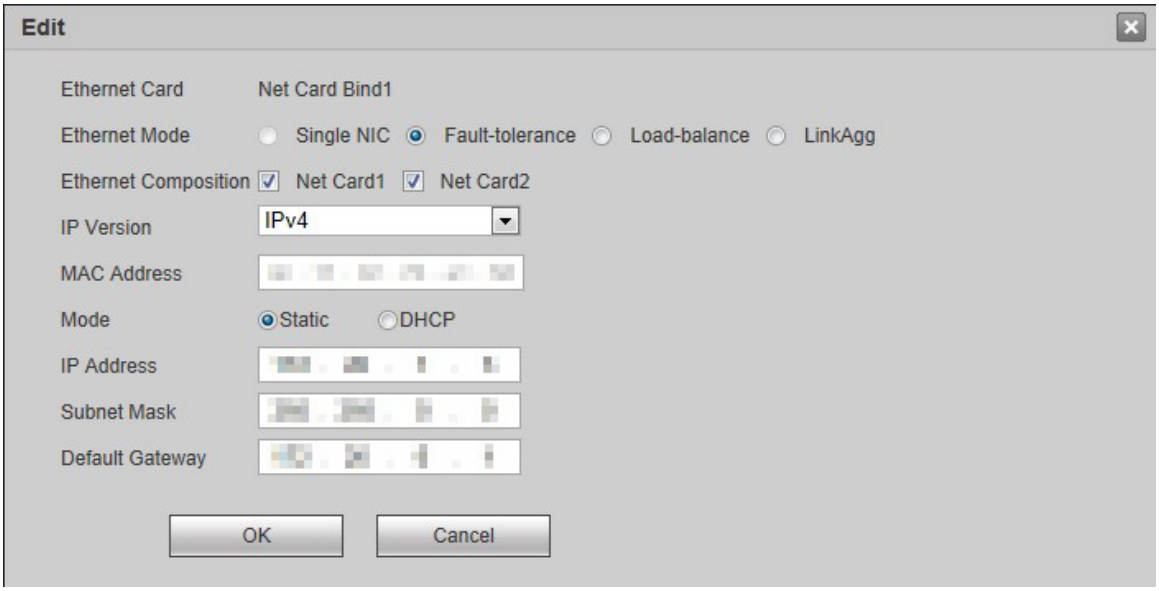


Table 6-13 Ethernet card parameters description

Parameter	Description
Ethernet Mode	The default setting is single NIC. ● Single NIC: Two net cards are used independently. Request HTTP, RTSP and other services of the device through net card 1 or net card 2. You need to configure one default net card (net card 1 by default), to request network services launched by the device, including DHCP, Email and FTP. During network status detection, the network is deemed to be disconnected if one net card is disconnected. ● Fault tolerance: All Ethernet cards use one IP address, and only one Ethernet card works under normal conditions. If working Ethernet card breaks down, the other Ethernet card is enabled automatically to ensure smooth network. It is deemed that the network is disconnected only when both Ethernet cards are disconnected during network status check. Both Ethernet cards need to be in the same LAN. ● Load balance: All Ethernet cards use one IP address, and all of them work together to bear network load; the bound network throughputs are basically the same. If one Ethernet card breaks down, the other Ethernet card works normally. It is deemed that the network is disconnected only when both Ethernet cards are disconnected during network status check. Both Ethernet cards need to be in the same LAN. ● Link aggregation: The system uses NIC bonding to realize communication function. All bonded NICs are working together and bearing the network load. The system allocates the corresponding ports to the specified switches according to the port load setting. Once one port link malfunctions, the system stops sending out data from current port. The system can calculate the new load and specify the new port(s) to send out data. The system calculates again to specify the port(s) once the malfunction port becomes available. Single NIC device does not support Ethernet mode selection.
Ethernet Composition	Select net card according to your need.
IP Version	It is IPv4 by default.
MAC Address	Displays the MAC address of the Device.
Mode	● Static: Manually enter the IP address, subnet mask and gateway. ● DHCP: Select the **DHCP** box, the system automatically obtains an IP address. When the **DHCP** function is enabled, the IP address, subnet mask and default gateway cannot be set manually. ◇ If DHCP is effective, the obtained information will be displayed in the **IP Address** box, **Subnet Mask** box and **Default Gateway** box. If DHCP is not effective, they all display 0. ◇ To view manually set IP when DHCP is not effective, you shall disable DHCP first, and then the device will display IP info that is not obtained through DHCP. If DHCP is effective, if DHCP is not enabled, static IP information will restore default settings. You need to configure IP again.

Parameter	Description
IP Address	Enter numbers to change the IP address, and then configure its **Subnet Mask** and **Default Gateway**.
Subnet Mask	
Default Gateway	IP address and default gateway must be in the same network segment.

Step 4 Click **OK** to complete modification of net card information.

Step 5 Click **OK**.

6.5.2.2 Port

Set max connection and port number to visit network video decoder through client (including web client and PC client).

Step 1 Select **Setup** > **Network** > **Port** > **Connection Setup**.

Figure 6-58 Connection setup

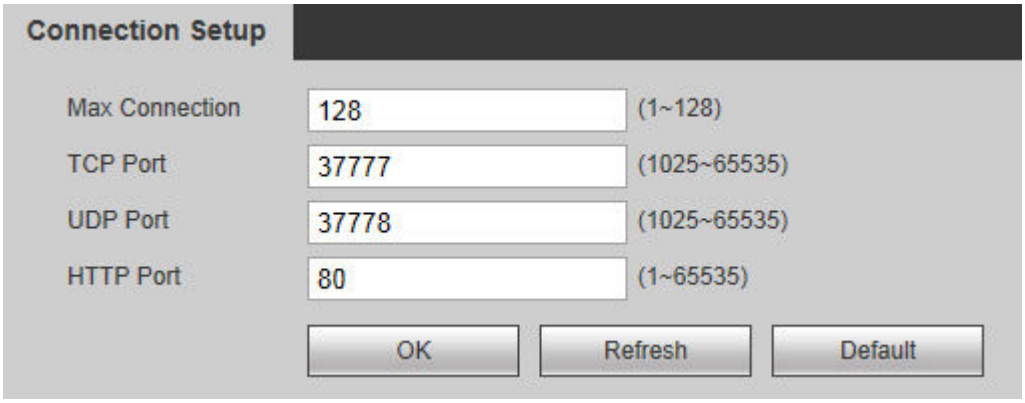
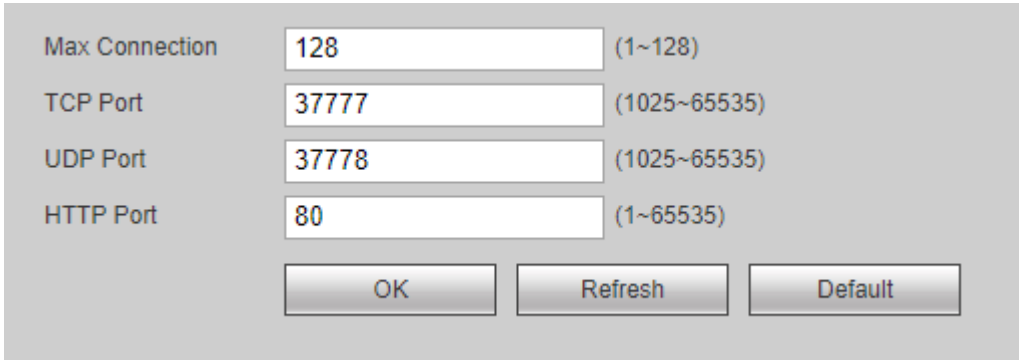


Figure 6-59 6-channel Ultrahigh Definition Series, 6-channel Ultrahigh Definition Series (with 2 Input Ports), 9-channel Ultrahigh Definition Series and 9-channel Ultrahigh Definition Series (with 4 Input Ports) system service connection setup



Step 2 Configure max connection and port number.

Table 6-14 Port parameters description

Parameter	Description
Max Connection	The allowable maximum number of clients accessing the Decoder at the same time, such as web, platform, and mobile phone. The default value is 128.

Parameter	Description
TCP Port	TCP service port. The default setting is 37777. You can configure this parameter.
UDP Port	User Datagram Protocol port. The default value setting is 37778. You can enter the value.
HTTP Port	Hyper Text Transfer Protocol port. The default setting is 80. You can enter the value, and in this case, please add the modified port number after the address when logging the Device on the browser.

Step 3 Click **OK**.

Except **Max Connection**, modifications of other parameters will take effect after reboot.

6.5.2.3 Synchronizing IP

Sync IP address of a device with the timing function, to synchronize system time, and ensure the system time is correct.

Step 1 Select **Setup** > **Network** > **Sync IP**.

Figure 6-60 Sync IP

Step 2 Enter IP address, and then click **Add**.

Step 3 Click **OK**.

6.5.3 Event Management

Manage abnormal events. The system executes alarm linkage actions according to settings.

6.5.3.1 Alarm Setup

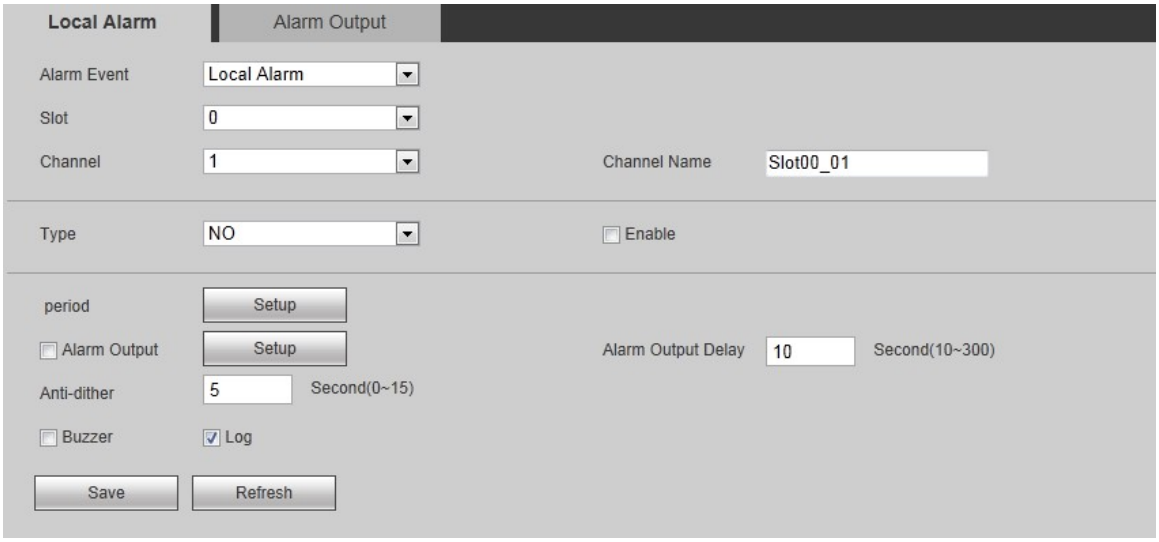
You can configure local alarm and alarm output.

6.5.3.1.1 Local Alarm

Configure local alarm. When an abnormal event occurs, the system executes alarm linkage actions.

Step 1 Select **Setup** > **Event Management** > **Alarm Setup** > **Local Alarm**.

Figure 6-61 Local alarm



Step 2 Configure the parameters.

Table 6-15 Alarm parameters description

Parameter	Description
Alarm Event	Select alarm event. It is **Local Alarm** by default.
Slot	Select the slot of local alarm.
Channel	Select the alarm channel.
Channel Name	Enter the alarm channel name.
Type	Select external alarm device type. Both NO and NC are supported. Select the check box to enable the function.
Period	Configure alarm period. Alarm is produced only within the configured period. Click **Setup** to configure alarm period in the following steps: 1. Select week. 2. Configure the time period. A total of 6 periods can be configured. ● Click **Default Time**, and all periods will be default period, 00:00:00–23:59:59. ● Click **Current Time**, and the period will be the last saved time. 3. Select the day(s) in **Apply to** zone, so the configured periods will be applied to the day(s). 4. Click **OK**.
Alarm Output	Connect alarm output port with alarm devices (such as light and siren etc.). In case of alarm, the system will send alarm information to alarm devices. Click **Setup** to select slot.
Alarm Output Delay	After the alarm is stopped, the alarm output is delayed for some time, ranging from 10 seconds through 300 seconds.
Anti-dither	The system records only one alarm input event during the configured period.

Parameter	Description
Buzzer	The system activates a buzzer alarm when an alarm event occurs.
Log	The log records alarm information when an alarm event occurs.

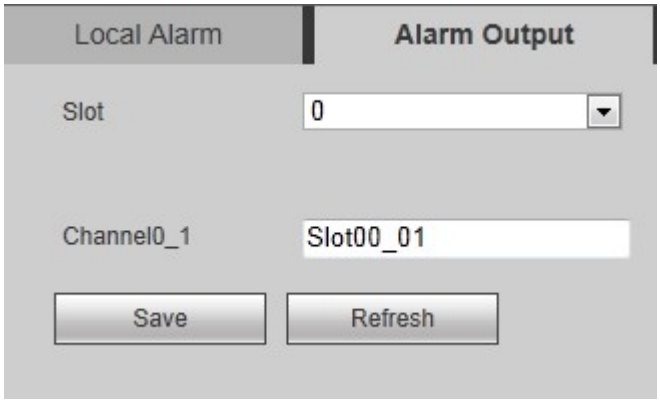
Step 3 Click **Save**.

6.5.3.1.2 Alarm Output

When an abnormal event occurs, alarm output channel produces alarm signal. Alarm device connected with alarm output port will execute alarm linkage actions.

Step 1 Select **Setup** > **Event Management** > **Alarm Setup** > **Alarm Output**.

Figure 6-62 Alarm output



Step 2 Select alarm output slot and channel.

Step 3 Click **Save**.

6.5.3.2 Abnormal

Set alarm linkage actions when an abnormal event occurs. The system executes alarm linkage actions.

Step 1 Select **Setup** > **Event Management** > **Abnormal**.

Figure 6-63 Network offline

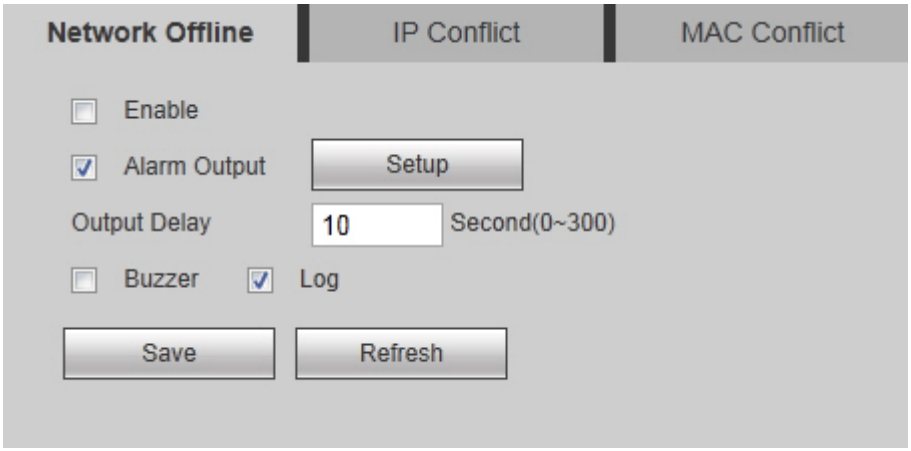


Figure 6-64 IP conflict

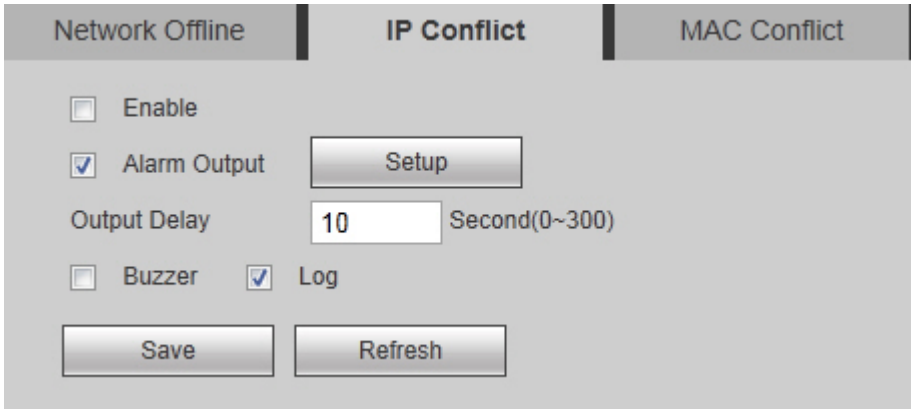
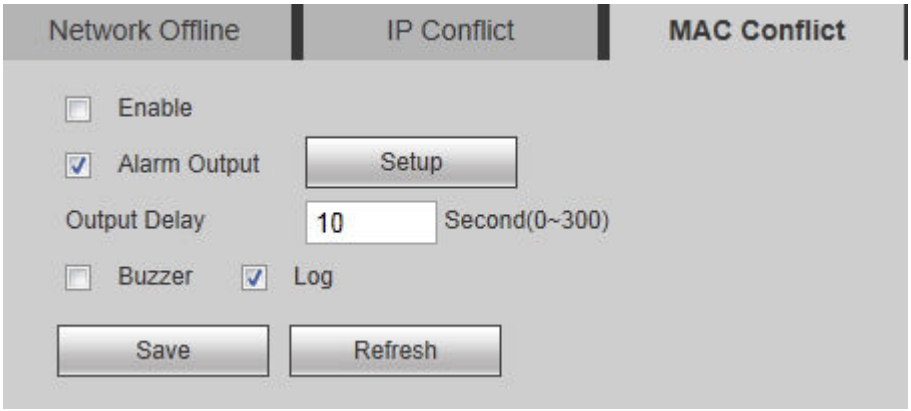


Figure 6-65 MAC conflict



Step 2 Select **Enable** to enable the alarm function.

Step 3 Configure the parameters.

Table 6-16 Abnormal parameters description

Parameter	Description
Alarm Output	Connect alarm output port with alarm devices (such as light and siren etc.). In case of alarm, the system will send alarm information to alarm devices. Click **Setup** to select slot.
Output Delay	After the alarm is stopped, the alarm output is delayed for some time, ranging from 0 seconds through 300 seconds.
Buzzer	The system activates a buzzer alarm when an alarm event occurs.
Log	The log records alarm information when an alarm event occurs.

Step 4 Click **Save**.

6.5.4 Signal Management

You can manage network signal, local signal and signal group.

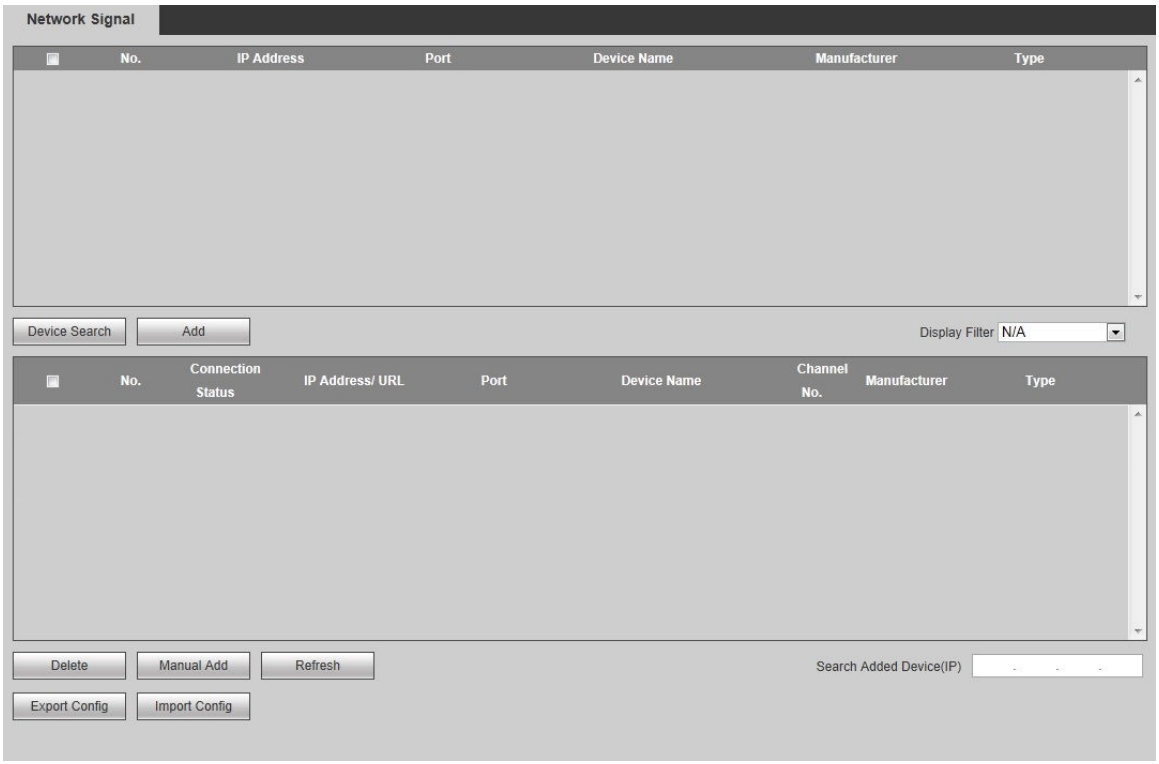
6.5.4.1 Network Signal

You can add devices in the network, preview and display network signal on the video wall, and also control the remote device.

The device shall have a decoding card, so network signal can be decoded and displayed on the video wall.

Select **Setup** > **Signal Management** > **Network Signal**.

Figure 6-66 Network signal



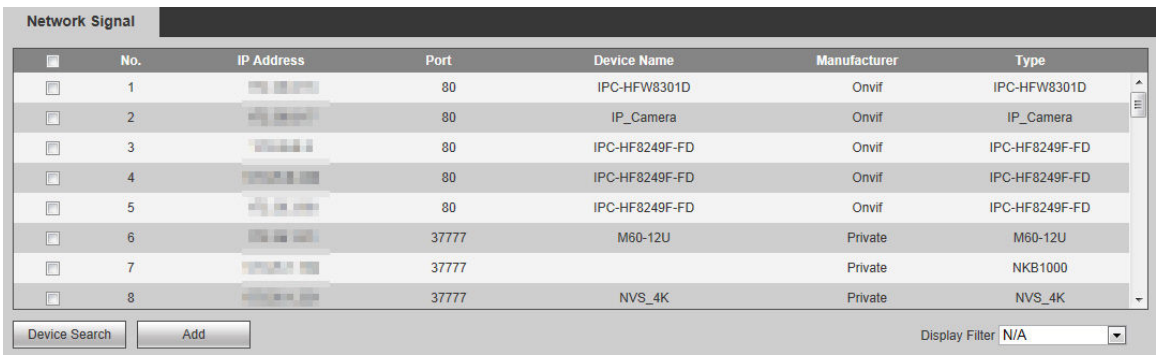
6.5.4.1.1 Searching and Adding

Procedure

Step 1 Click **Device Search**.

The system starts to search all network signals in the LAN.

Figure 6-67 Searching signal

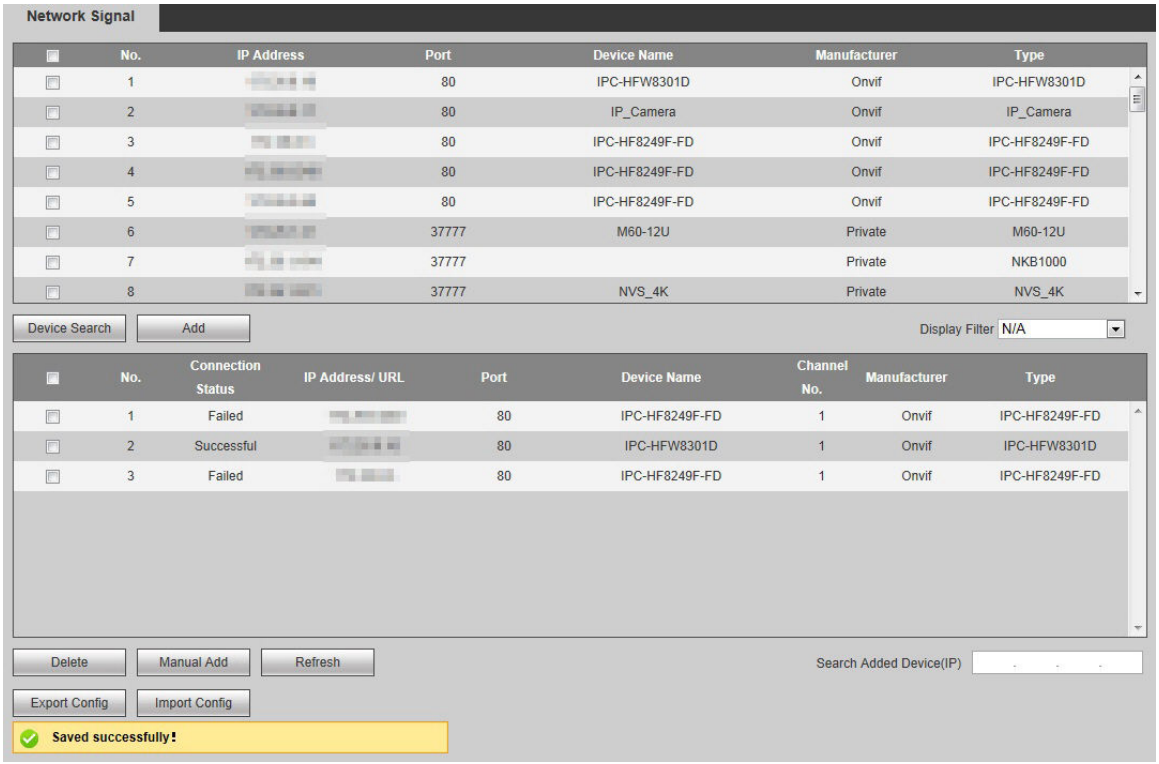


Filter device type in **Display Filter**. For example, select IPC, and all IPC devices will be displayed here.

Step 2 Select the check box corresponding to the network signal, and click **Add**.

This network signal is displayed in the list, and the system displays **Saved successfully**.

Figure 6-68 Adding signal



- If the device is under normal use, **Connection Status** will change from **Failed** to **Successful** after several seconds. The system will display **Saved successfully** again.
- If **Connection Status** remains **Failed**, the device might not be started, or a blocklist has been configured, or it is not included in an allowlist.

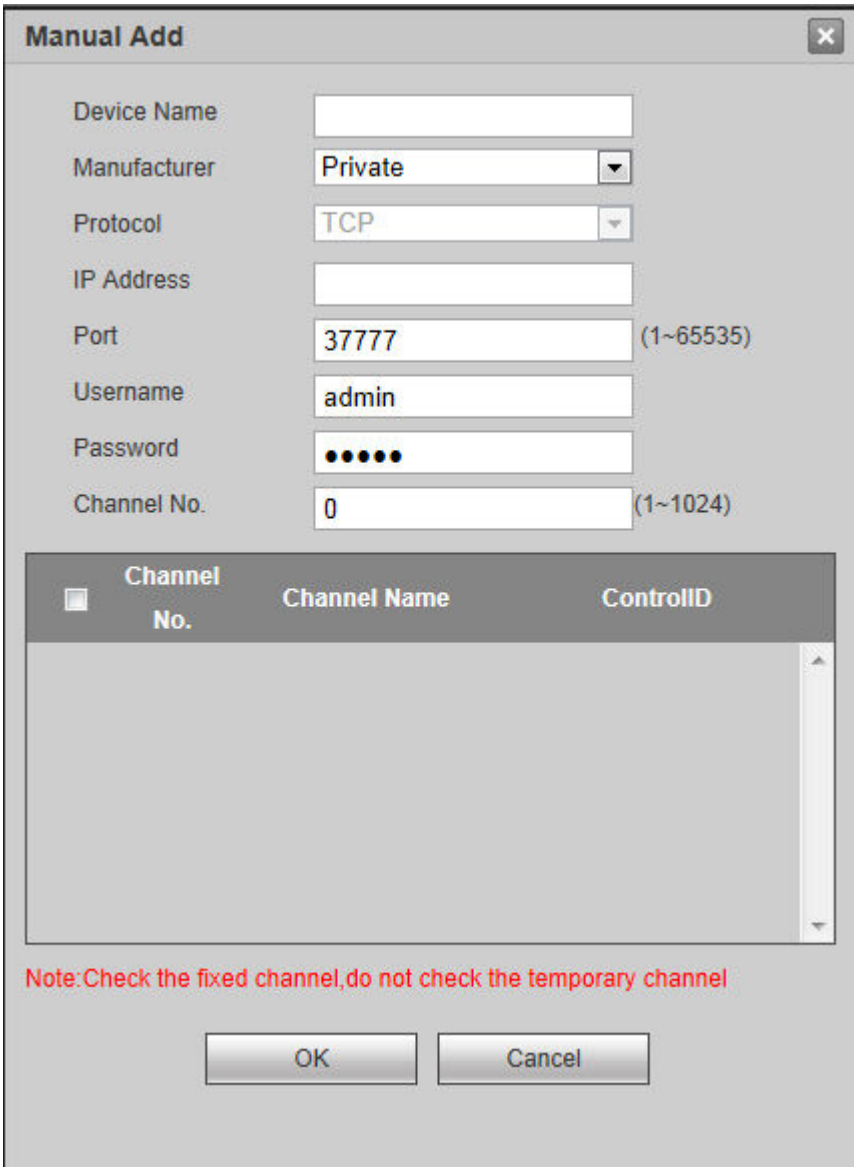
Enter IP address in **Search Added Device (IP)** search box, and this device information will be marked yellow in the list.

6.5.4.1.2 Manual Add

Procedure

Step 1 Click **Manual Add**.

Figure 6-69 Manual add



Step 2 Configure the parameters.

Table 6-17 Manual add parameters description

Parameter	Description
Device Name	It is to fill in device name.
Manufacturer	Select device manufacturer.
Protocol	It is TCP by default.
IP Address	Configure the IP address of device to be added.
Port	Configure port number of device to be added. The port number is 37777 by default.
Username	Configure the username to log in the device to be added.
Password	Configure the password to log in the device to be added.
Channel No.	Number of connected channels.

Step 3 Click **OK**.

This network signal is displayed in the list, and the system displays **Saved successfully**.

6.5.4.1.3 Import and Export Configuration

Import and export configurations to add network signals in batches.

Enable HTTPS before using **Import Config** and **Export Config** functions.

Step 1 Import or export configurations.

- Click **Import Config** to import the preset devices information into the system.
- Click **Export Config** to export configuration file and save it in local device for backup.

Step 2 Click **Import Config** or **Export Config** in HTTP environment.

Step 3 Click **OK**. The system jumps to HTTPS environment.

You need to log in again, and then click **Import Config** or **Export Config.**

6.5.4.1.4 Deleting Network Signal

Select a network signal from the added signal list, and click **Delete** to delete the network signal.

6.5.4.1.5 Sorting

Click each attribute field, and will appear on the right of the field, meaning the network signal is arranged in descending order. Click it again, and the icon turns into , meaning the network signal is arranged in ascending order.

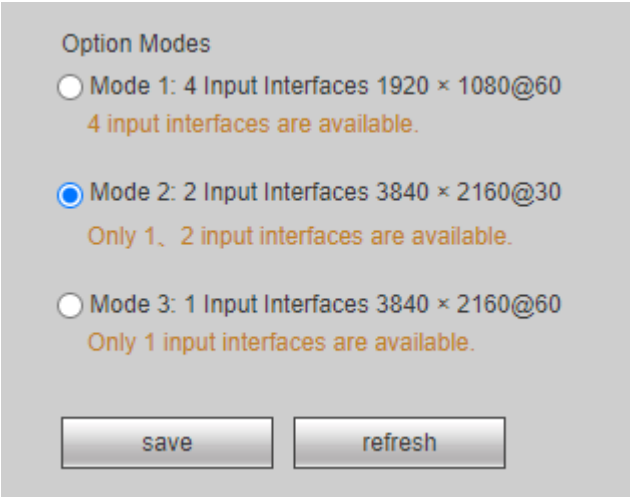
6.5.4.2 Local Signal

6.5.4.2.1 Input Mode Configuration

Only 9-channel Ultrahigh Definition Series (with 4 Input Ports) supports this function.

Select **Setup** > **Signal Management** > **Local Signal** > **Input Mode Config**.

Figure 6-70 Input mode configuration



- Mode 1: The 4 input ports all support 1080P@60fps.
- Mode 2: Only the first 2 input ports support signal acquisition and support 4K@30 fps.
- Mode 3: Only the first port supports signal acquisition and support 4K@60fps.

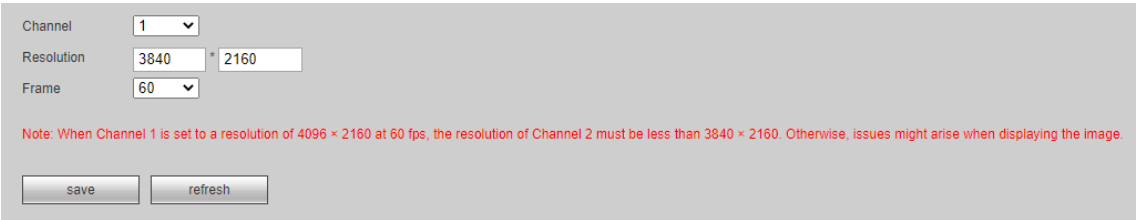
6.5.4.2.2 EDID Custom

After you customize the Extended Display Identification Data (EDID) Settings, the computer outputs the EDID at the set resolution.

Only 6-channel Ultrahigh Definition Series (with 2 Input Ports) supports EDID settings.

Select **Setup** > **Signal Management** > **Local Signal** > **EDID Custom**.

Figure 6-71 EDID Custom



Select channel, resolution and frame, and then click **Save**.

When channel 1 is set to a resolution of 4096 × 2160 at 60 fps, the resolution of channel 2 must be less than 3840 × 2160. Otherwise, issues might occur when displaying the image.

6.5.4.2.3 Input Title

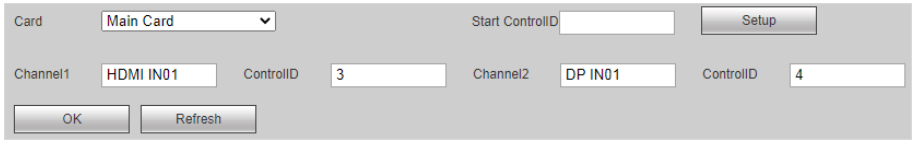
You can set input name and control ID for each channel of a card. The set control ID can be associated with a bound source such as keyboard to display streams on the video wall.

1-channel 4K high definition series and 4-channel 8K ultrahigh definition series do not support this function.

Step 1 Select **Setup** > **Signal Management** > **Local Signal** > **Input Title**.

The webpages of different models are slightly different.

Figure 6-72 Input title



Step 2 Select a card, and then set channel name and control ID.

After you set **Start ControlID** and click **Setup**, the control IDs of different channels are numbered starting from **Start ControlID**.

Step 3 Click **OK**.

6.5.4.2.4 Encode Setup

You can configure the encoding parameters of the Decoder, such as encoding mode, stream type, resolution, and frame rate.

Step 1 Select **Setup** > **Signal Management** > **Local Signal** > **Encode Setup**.

Step 2 Configure the parameters.

Figure 6-73 Encode setup

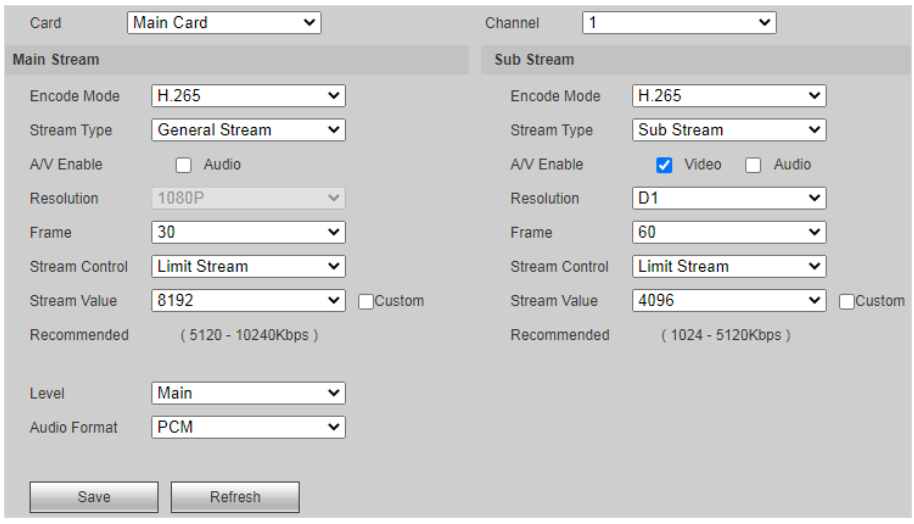


Table 6-18 Description of encoding parameters

Parameter	Description
Card	It is **Main Card** by default.
Channel	Select the channel of the Decoder that you need to set.
Encode Mode	Select the encoding mode according to the bandwidth conditions. Compared with H.264, H.265 uses less bandwidth and does not compromise image quality.

Parameter	Description
Stream Type	It is **General Stream** by default for main stream, and **Sub Stream** by default for sub stream.
A/V Enable	Enable audio and video encoding based on your needs.
Resolution	The resolution of the video. The higher the value is, the clearer the image will be, but the bigger the required bandwidth will be.
Frame	The number of frame in one second of video. The higher the value is, the clearer and smoother the video will be.
Stream Control	The bit rate control type during video data transmission. You can select from: • Limit stream: The bit rate changes a little and keeps close to the defined bit rate value. • VBR: The bit rate changes as monitoring scene changes.
Stream Value	The system recommends the suitable stream value range according to the defined resolution and frame rate. You can select the value from the drop-down list, or select **Custom**, and then define a value.
Level	Includes **Baseline** (Baseline Profile encoding mode) and **Main** (Main Profile encoding mode). **Main** uses less bandwidth than **Baseline** and does not compromise image quality.
Audio Format	It is **PCM** by default.

Step 3 Click **Save**.

6.5.4.2.5 Capture Custom

You can crop captured images based on specified scale and display the images based on specified coordinates.

Only 6-channel Ultrahigh Definition Series, 6-channel Ultrahigh Definition Series (with 2 Input Ports), 9-channel Ultrahigh Definition Series and 9-channel Ultrahigh Definition Series (with 4 Input Ports) and 4-channel 8K ultrahigh definition (with 2 input ports) support this function.

Step 1 Log in to the webpage.

Step 2 Select **Setup** > **Signal Management** > **Local Signal** > **Capture Custom**.

Figure 6-74 Capture custom

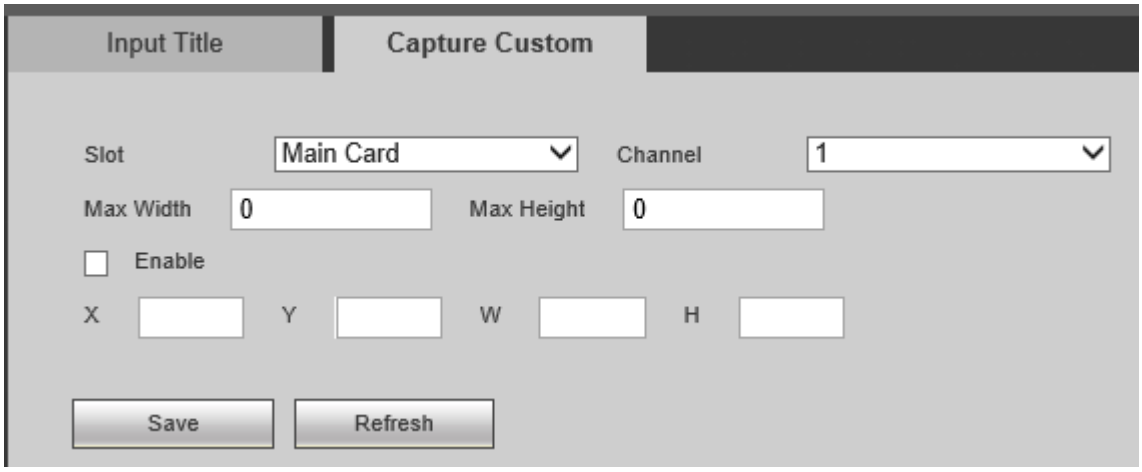
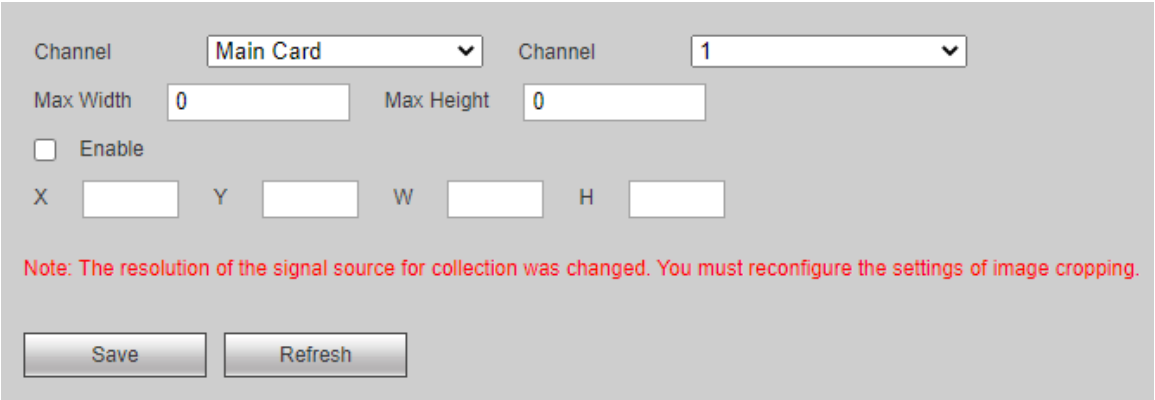


Figure 6-75 6-channel Ultrahigh Definition Series, 6-channel Ultrahigh Definition Series (with 2 Input Ports), 9-channel Ultrahigh Definition Series and 9-channel Ultrahigh Definition Series (with 4 Input Ports) capture custom



Step 3 Select the slot and channel you need to crop.

Step 4 Set the maximum width and height during video encoding.

Example: If the resolution of a captured video is 1080 p and the resolution of the cropped video is 500 × 900, set **Max Width** to 1920 and **Max Height** to 1080. During encoding, the system encodes the cropped video to a video of 1080 p.

Step 5 Select **Enable** to enable the image cropping function.

Step 6 Set the coordinates for display and the width and height for cropping.

X/Y corresponds to the coordinates of the starting pixel. W/H corresponds to the width and height for cropping, in pixels.

Step 7 Click **Save**.

6.5.4.2.6 Ultra-High Resolution

Procedure

Step 1 Select **Setup** > **Signal Management** > **Local Signal** > **Ultra-high resolution**.

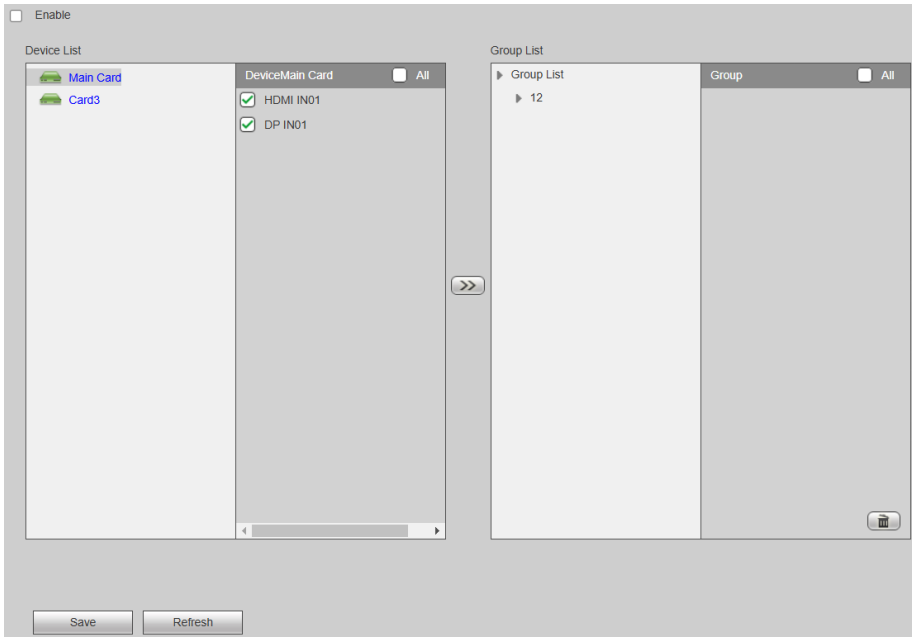
Step 2 Select the checkbox next to **Enable** and click **Save**. You can select the corresponding Card.

Step 3 Select the input channels of the card.

Step 4 Click >> to move the selected input channels to the corresponding group list.

Step 5 Click **Save**.

Figure 6-76 Ultra-high resolution

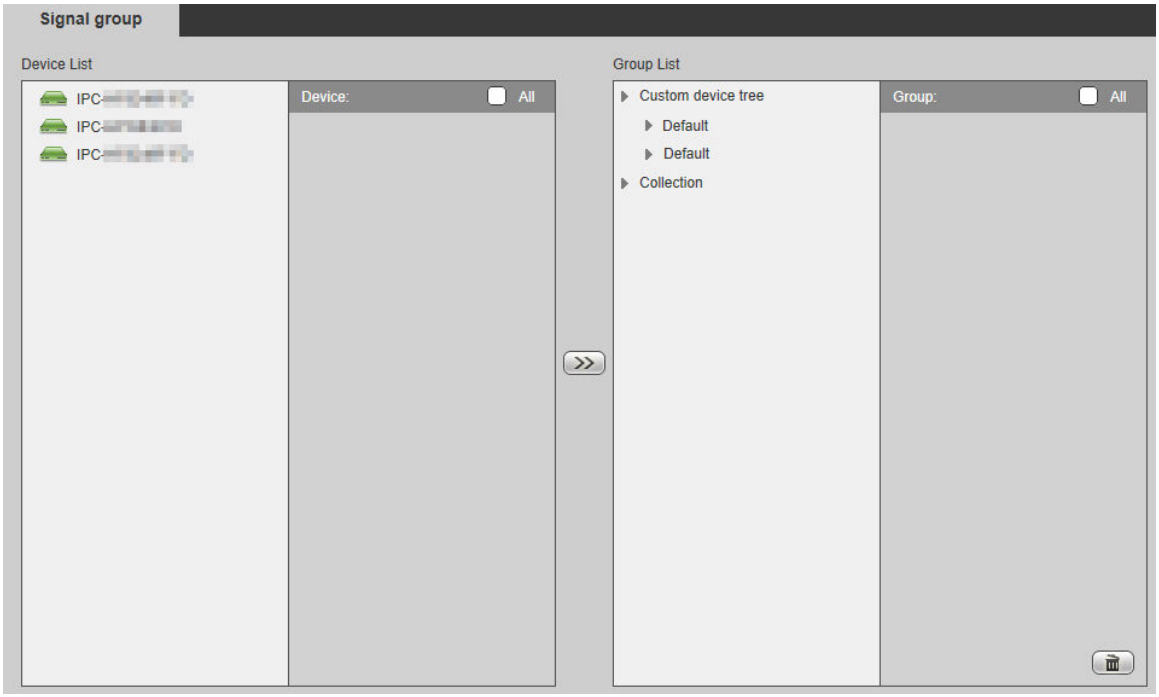


6.5.4.3 Signal Group

You can customize signal group. The **Signal Group** tab displays added group and signal source. You can drag signal group to the window for loop play of signals in the group.

Step 1 Select **Setup** > **Signal Management** > **Signal Group**.

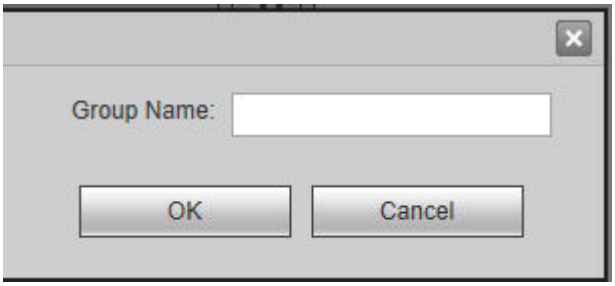
Figure 6-77 Signal group



Step 2 Create a group.

1. Move your mouse pointer to **Custom device tree** or **Collection** in **Group list**, and then click +.

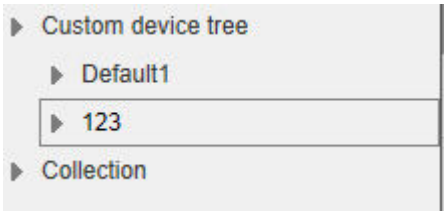
Figure 6-78 Create a group



2. Enter group name, and then click **OK**.

   A group has been created.

Figure 6-79 Creation is completed



Move your mouse pointer to group name. Editing icons are displayed.

- Click + to create a sub-group under this group.

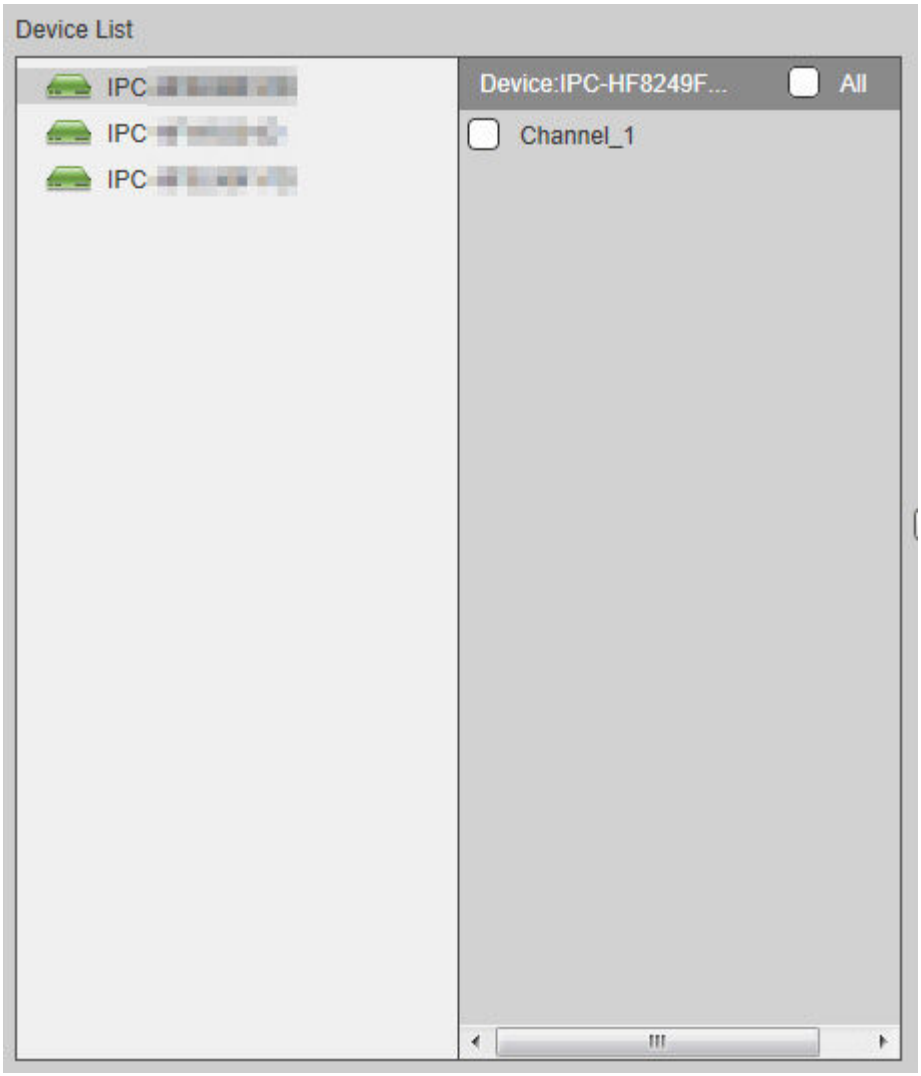
  Sub-group cannot be created under **Collection** group.
- Click ✎ to rename this group.
- Click ✕ to delete this group.

Step 3 Select signal.

1. Select a device from **Device List**.

   Device name list displays all signals under this device.

Figure 6-80 Select device



2. Select one signal or multiple signals.

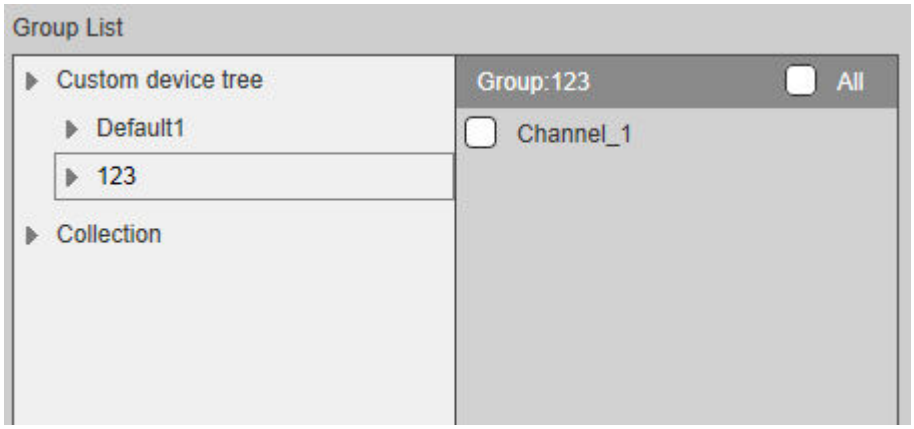
Select **All** to select all the signals.

Step 4 Select a group.

Step 5 Click >>.

Signals have been divided into groups.

Figure 6-81 Grouping is completed



- Select a signal from a group, and click to delete the signal.
- Select **All** to select all the signals.

6.5.5 Display Management

You can configure video wall, manage screen, configure output display and output name.

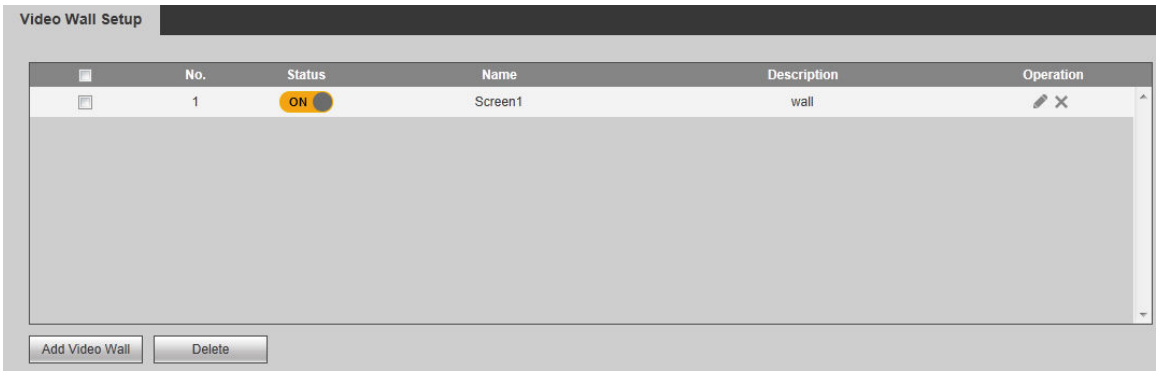
6.5.5.1 Video Wall Setup

The page might vary depending on the device model.

You can configure video walls according to actual quantity and splitting of screens, so signals can be displayed on video walls.

Select **Setup** > **Display Management** > **Video Wall Setup**.

Figure 6-82 Video wall setup

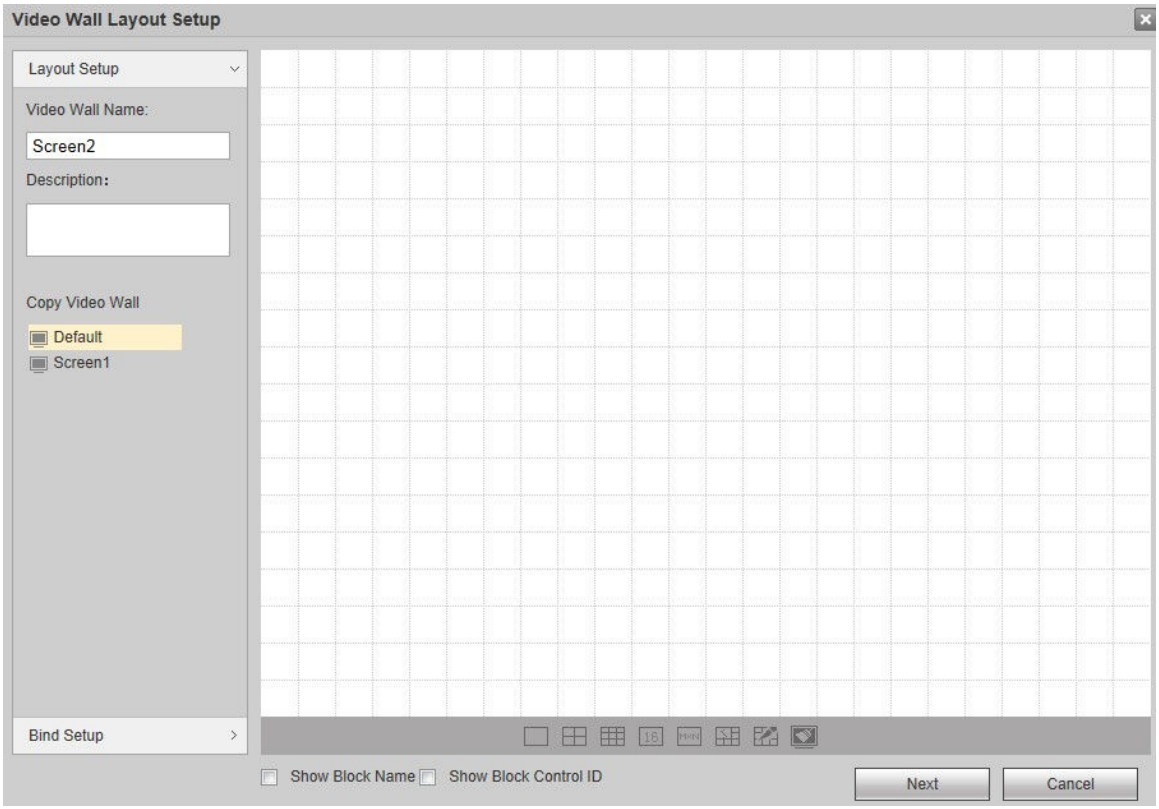


6.5.5.1.1 Adding Video Wall

Procedure

Step 1 Click **Add Video Wall**.

Figure 6-83 Video wall layout setup



Step 2 Configure the layout.

1. Customize **Video Wall Name** and **Description**.
2. Click icons at the bottom of the page, to add single screen and split screen quickly.

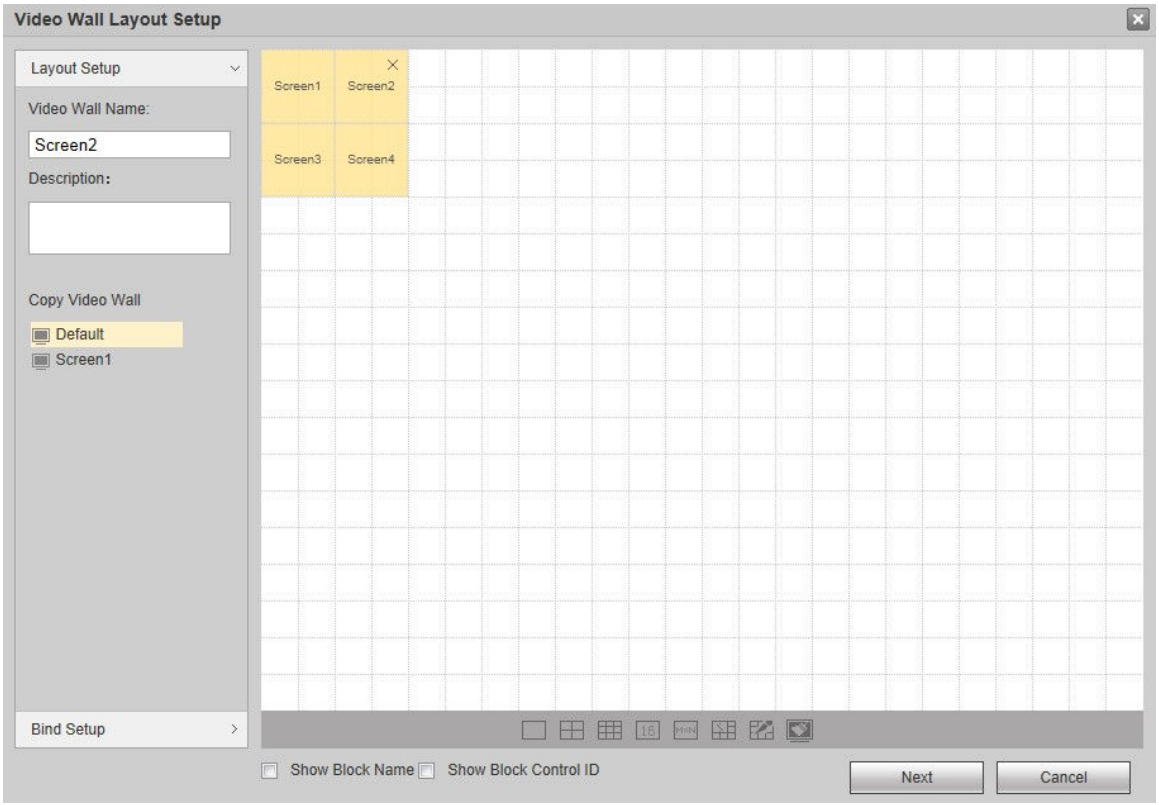
Press and hold on left mouse button, you can drag the screen to anywhere you want.

Table 6-19 Parameters description

Icon	Name	Description
	Single Screen	Click to add single screen.
	4-split Screen	Click to add a 4-split screen.
	9-split Screen	Click to add a 9-split screen.
	16-split Screen	Click to add a 16-split screen.
	Custom	Click this icon, enter row and column number in the pop-up **User Custom** page, and you can add a custom screen.
	Splicing	Select separate screens, and click this icon to splice them. ● Splicing screen cannot be selected. ● Single screens shall be connected horizontally or vertically.

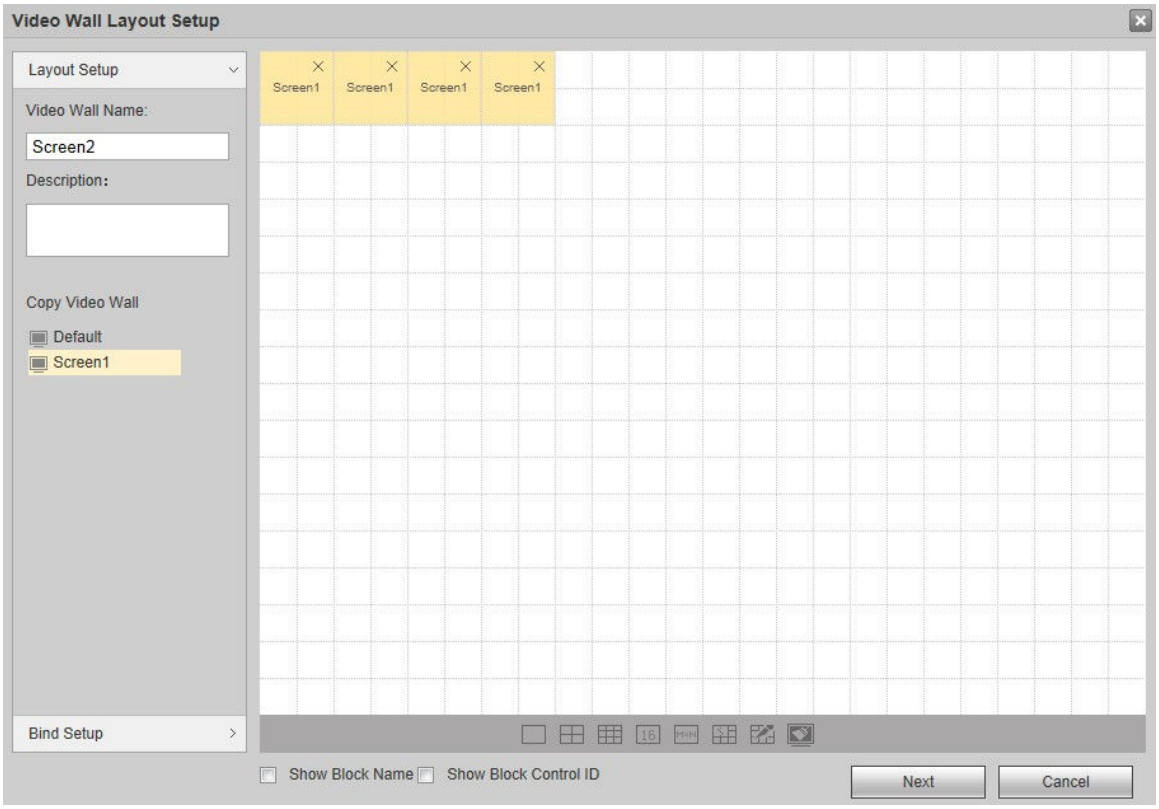
Icon	Name	Description
	Cancel Splicing	Select splicing screens, and click this icon to cancel their splicing.
	Clear Screen	Clear all screens on the video wall.

Figure 6-84 Add screen



You can select existing video wall from **Copy Video Wall** zone on the left of the interface, and then layout of video wall is displayed on the right of the page. You can modify the layout directly.

Figure 6-85 Copy video wall



Step 3 (Optional) Select **Show Block Name**. Every splicing screen will show a block name, such as Splicing Video Wall 1.

- For single screen, it still shows Screen 1, Screen 2 and more.
- Double-click to modify block name.

Figure 6-86 Show block name

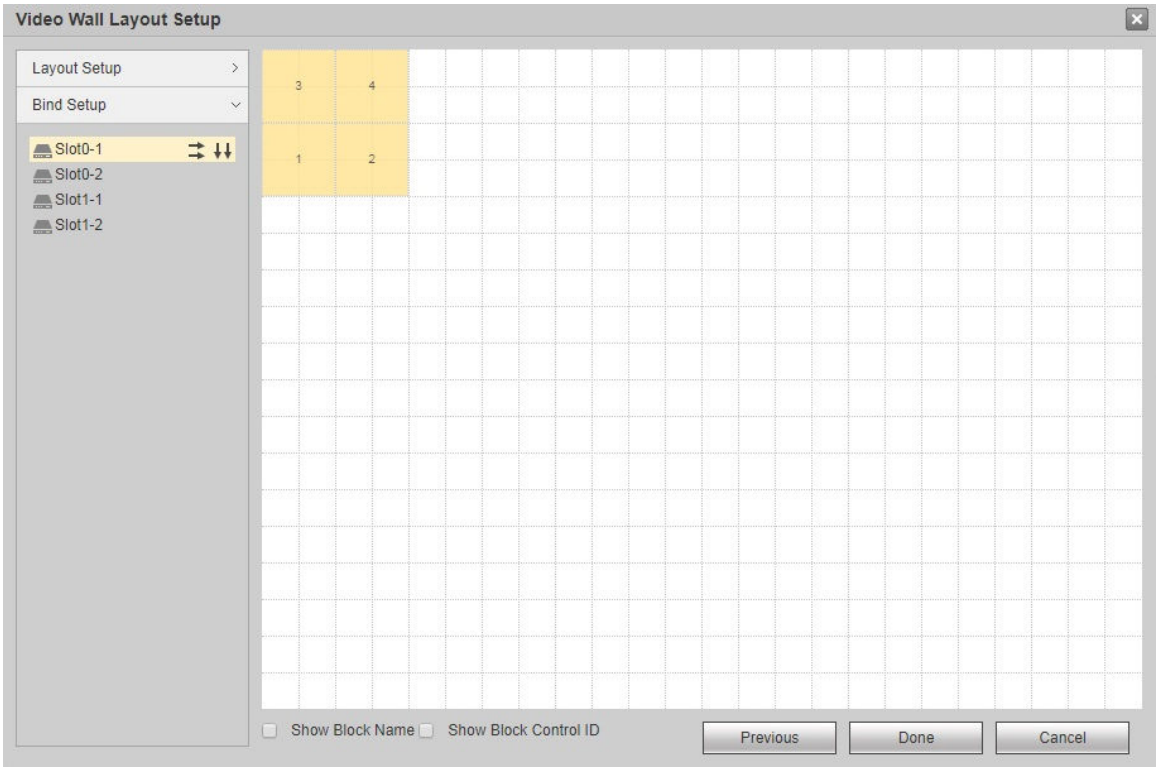
Select **Show Block Control ID**, and control ID of every block will be shown.

Show Block Name and **Show Block Control ID** cannot be selected at the same time.

Step 4 Click the **Bind Setup** tab or **Next**.

The slot information is displayed.

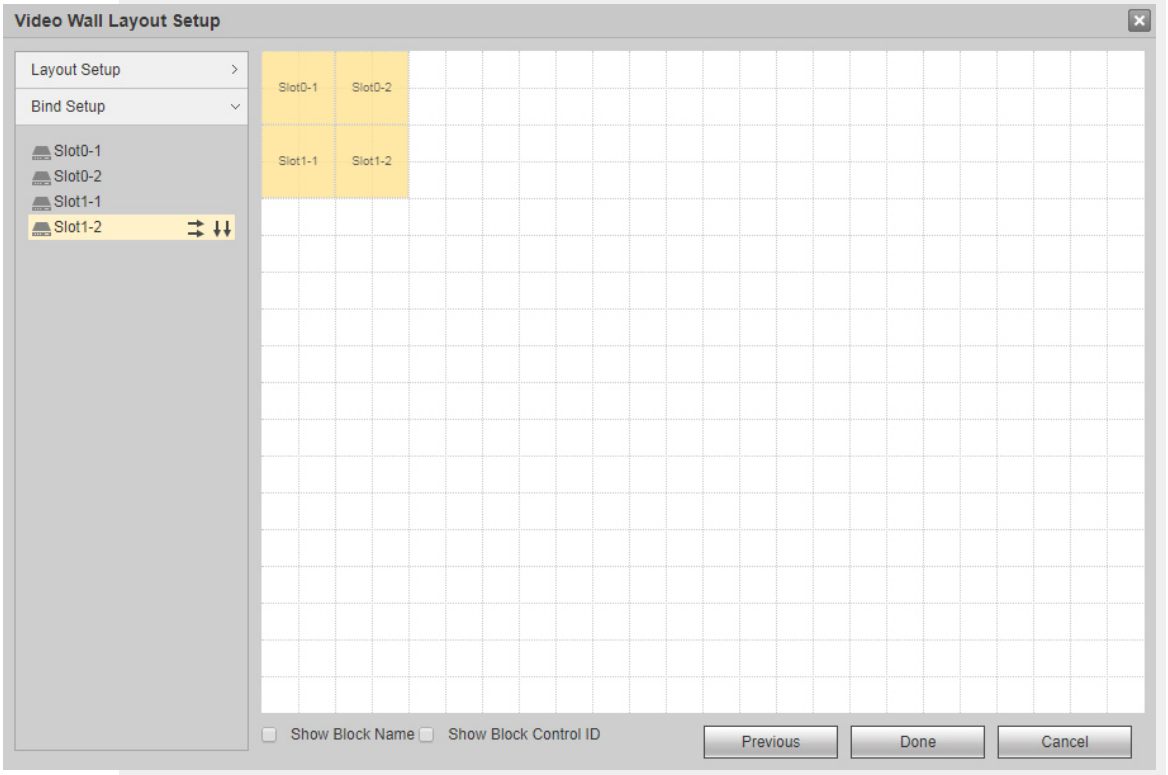
Figure 6-87 Slot information



Step 5 Select one slot, press and hold on left mouse button to drag the slot onto the screen, and bind the slot channel with screen.

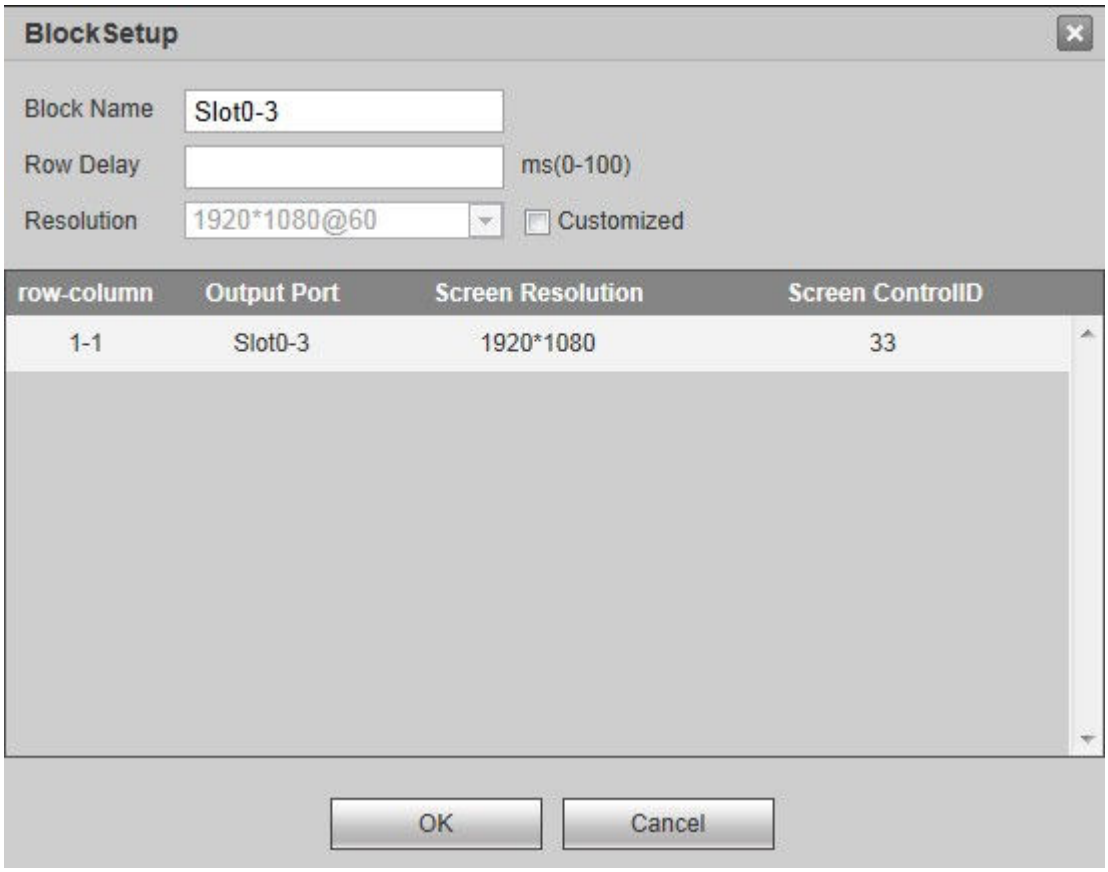
- All screens on the video wall shall be bound with slot channel; otherwise, when you click **Done** , the system will prompt you that "**There is sub screen without bound decoding channel in screen!**"
- Slot cannot be bound repeatedly. In case of error, drag a correct slot channel onto the screen, to cover it directly.
- Click to automatically bind slot with single screen horizontally.
- Click to automatically bind slot with single screen vertically.

Figure 6-88 Slot binding



Step 6 Double-click a new video wall block.

Figure 6-89 Block setup



Step 7 Set parameters.

Table 6-20 Block setup parameters description

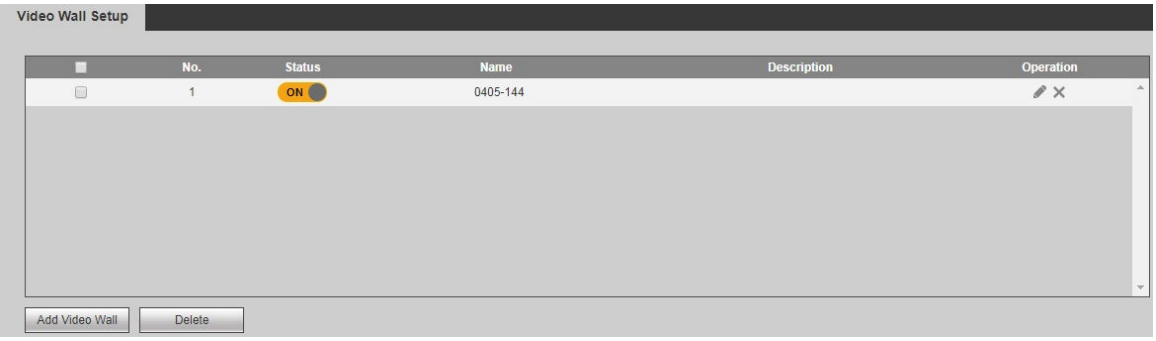
Parameter	Description
Name	Configure block name.
Row Delay	Configure row delay ranging from 0ms to 100ms.
Resolution	Select **Customized** to configure resolution of output screen corresponding to each slot.

Step 8 Click **OK**.

Step 9 Click **Done**.

The system exits **Video Wall Layout Setup** page. The new video wall is displayed in video wall list.

Figure 6-90 Adding is completed



6.5.5.1.2 Modifying Video Wall

Click , and modify video wall information in the pop-up **Video Wall Layout Setup** page.

6.5.5.1.3 Deleting Video Wall

Tick the video wall check box, click **Delete** or , to delete the selected video wall after confirmation.

6.5.5.2 Screen Management

You can configure screen parameters, to turn on and turn off the screen.

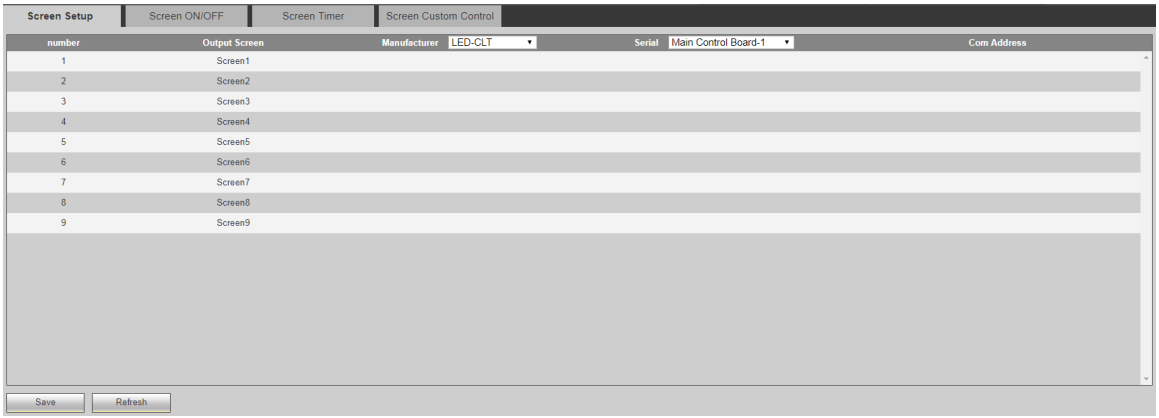
6.5.5.2.1 Screen Setup

Configure manufacturer, serial port and com address of every output screen, to realize communications between screen and device. Com address shall be the same with DIP address of video wall.

Step 1 Select **Setup** > **Display Management** > **Screen Management** > **Screen Setup**.

The page might vary depending on device model.

Figure 6-91 Screen setup



Step 2 Click drop-down list or text box to configure manufacturer, serial port and com address.

- They shall be the same with actual manufacturer, serial port and com address (DIP address) of video wall.
- Click the drop-down list at the top to configure manufacturer and serial port together.

Step 3 Click **Save**.

6.5.5.2.2 Screen On/Off

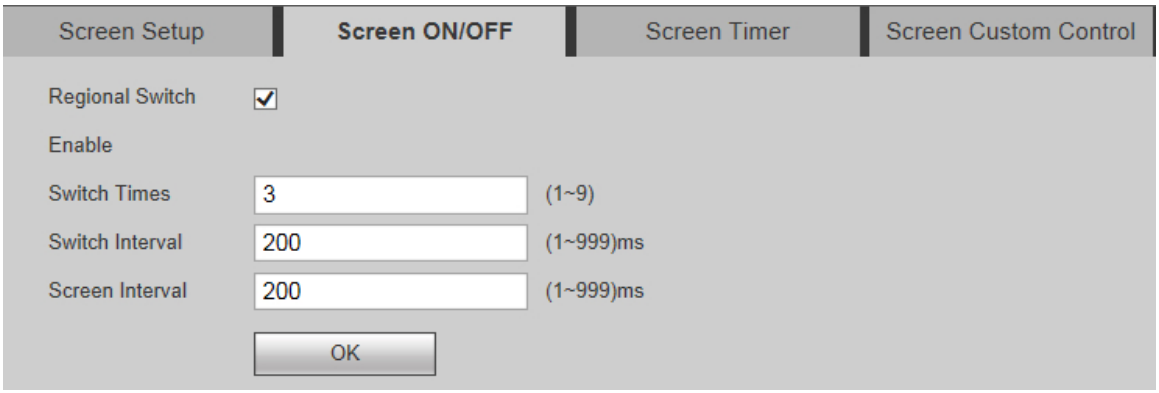
According to preset interval and time, the device sends ON/OFF commands to all screens continuously, and ensures that each screen receives commands and turns ON/OFF.

Prerequisites

1. Connect the Device, cameras and the screen through cables, and configure the video walls on the webpage.
   - For instructions on TV wall configuration, see "6.3.1 Adding Video Walls".
   - For instructions on serial line production, see "7.1 Serial Lines Production".
2. Select **Setup** > **System Config** > **Comm Setup** and then select 232 as the **COM Type** , monitor switch as the **Function** and 9600 as the **Baud Rate**.
3. Select **Setup** > **Display Management** > **Screen Management** > **Screen Setup**, select Dahua as the **Manufacturer** and the corresponding serial and then fill in the com address of the serial port.

Step 1 Select **Setup** > **Display Management** > **Screen Management** > **Screen ON/OFF**.

Figure 6-92 Screen ON/OFF



Step 2 Select the **Regional Switch Enable** check box to enable the function.

Step 3 Configure the parameters.

Table 6-21 Parameters description

Parameter	Description
Switch Times	The times of sending ON/OFF command.
Switch Interval	Interval of sending ON/OFF command.
Screen Interval	The interval for every screen to receive ON/OFF command.

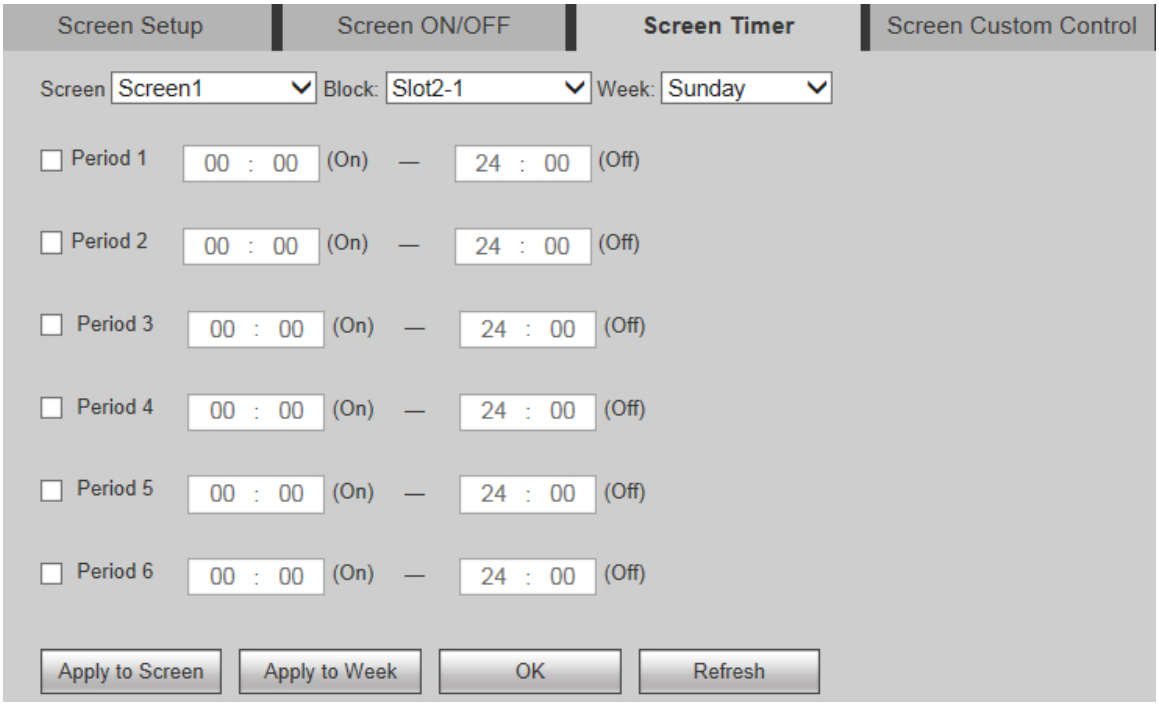
Step 4 Click **OK**.

6.5.5.2.3 Screen Timer

Configure fixed ON/OFF time of every screen. Within the configured period, every screen will be turned ON/OFF at the fixed time.

Step 1 Select **Setup** > **Display Management** > **Screen Management** > **Screen Timer**.

Figure 6-93 Screen timer



Step 2 Select **Screen** , **Block** and **Week**.

Step 3 Select period and configure ON/OFF time.

Step 4 Click **OK**.

After periods of one week have been configured.

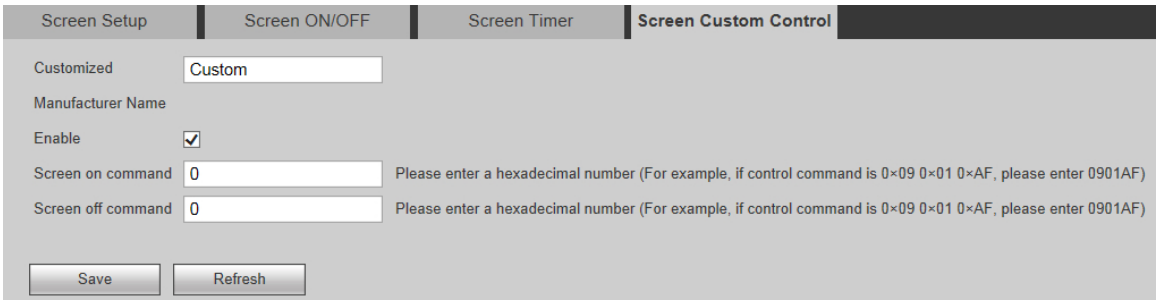
- Click **Apply to Screen**, and select another slot in the pop-up page to apply this configuration to the slot.
- Click **Apply to Week**, and select another week in the pop-up page to apply this configuration to the week.

6.5.5.2.4 Screen Custom Control

Customize screen on and off commands.

Step 1 Select **Setup** > **Display Management** > **Screen Management Screen Custom Control**.

Figure 6-94 Screen custom control



Step 2 Enter the Customized Manufacturer Name.

Step 3 Select **Enable**.

Step 4 Configure Screen on command and Screen off command.

Configure a hexadecimal number.

Step 5 Click **Save**.

6.5.5.3 Display Setup

You can configure the display parameters, enable main/sub stream auto switch, and window prompt info.

6.5.5.3.1 Configure Display

You can configure the resolution, video mode, hue, brightness and other parameters of the display, and adjust screen display.

Procedure

Step 1 Select **Setup** > **Display Management** > **Display Setup** > **Display Setup**.

The webpage is for reference and might differ depending on the device models.

Step 2 Configure the parameters.

Figure 6-95 Display setup

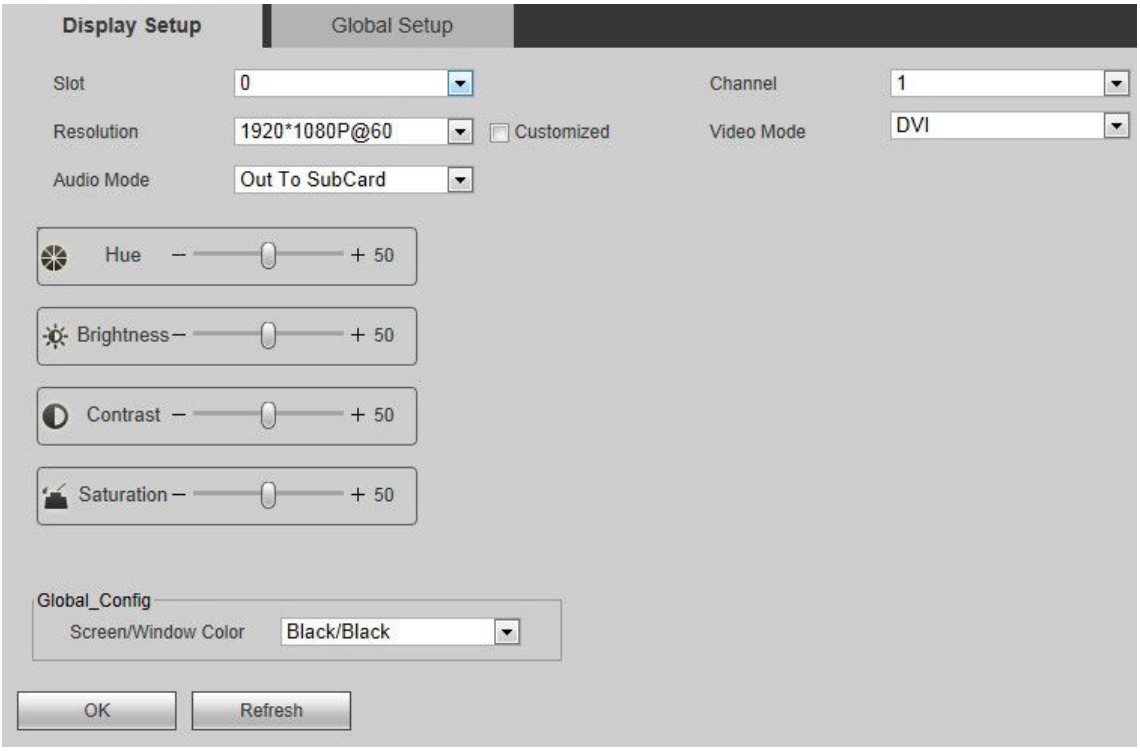


Figure 6-96 6-channel Ultrahigh Definition Series, 6-channel Ultrahigh Definition Series (with 2 Input Ports), 9-channel Ultrahigh Definition Series and 9-channel Ultrahigh Definition Series (with 4 Input Ports) setup

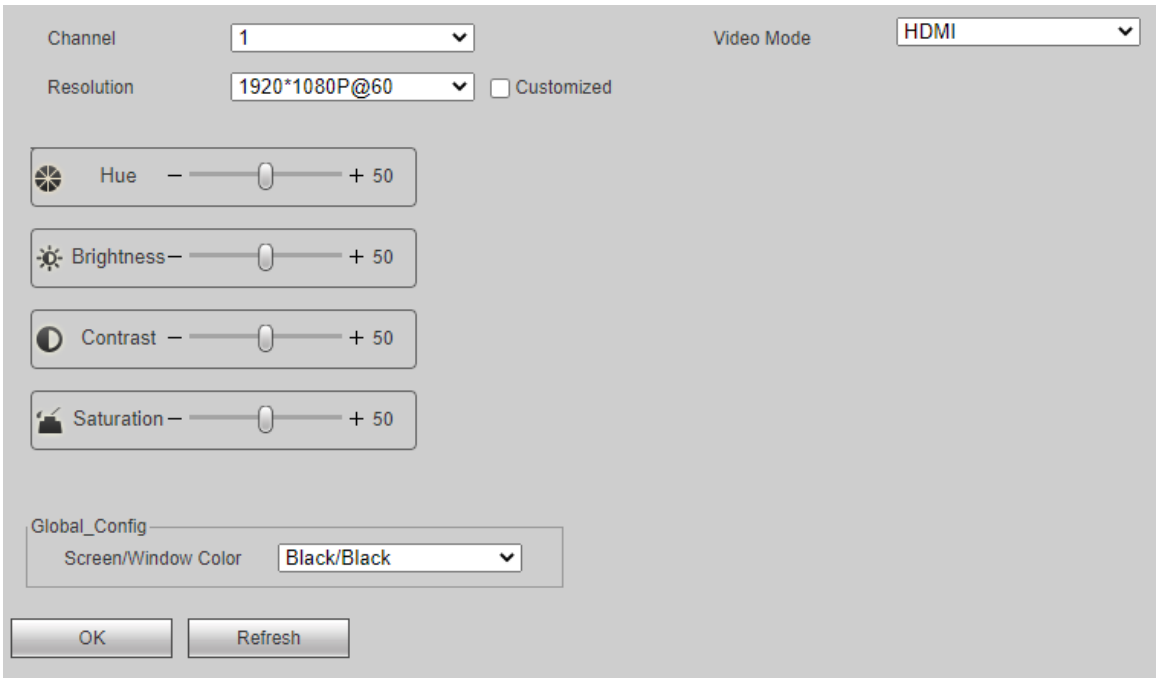


Table 6-22 Parameter description

Parameter	Description
Slot	Configure slot of display. Device with 9 or less channels does not support this function.
Channel	Configure the channel of display.
Resolution	Configure the resolution of display. Customize the resolution after you select **Customized**.
Video Mode	Select the video output mode.
Audio Mode	N/A.
Hue	Drag the slider to adjust the image hue and saturation.
Brightness	Drag the slider to adjust the image brightness through linear adjustment. The bigger the value is, the brighter the image will become. And vice versa. However, the image is likely to become dim if the value is too big.
Contrast	Drag the slider to adjust the image contrast. The bigger the value is, the more obvious the contrast between the light area and dark area will become. And vice versa. However, if the value is too big, the dark area is likely to become darker and the light area will be over exposed. If the value is too small, the image is likely to become dim.
Saturation	Drag the slider to adjust the color shades. The bigger the value is, the heavier the color will become. And vice versa. This value does not affect the overall brightness of image.
Screen/Window Color	Configure screen and window color, including black/black and blue/green.

Step 3 Click **OK**.

6.5.5.3.2 Global Setup

You can configure to enable main/sub stream auto switch, window prompt information and "do not decode when being covered".

Step 1 Log in to the webpage.

Step 2 Select **Setup** > **Display Management** > **Display Setup** > **Global Setup**.

Step 3 Select the check boxes.

- 1-channel 4K high definition series does not support **Platform NetCard Pull Stream** and **Device NetCard Pull Stream**
- 1-channel 4K high definition series only supports **Main/Sub Stream Auto Switch** , **Window Prompt Info**, and **Do not decode when being covered**

Figure 6-97 Global setup

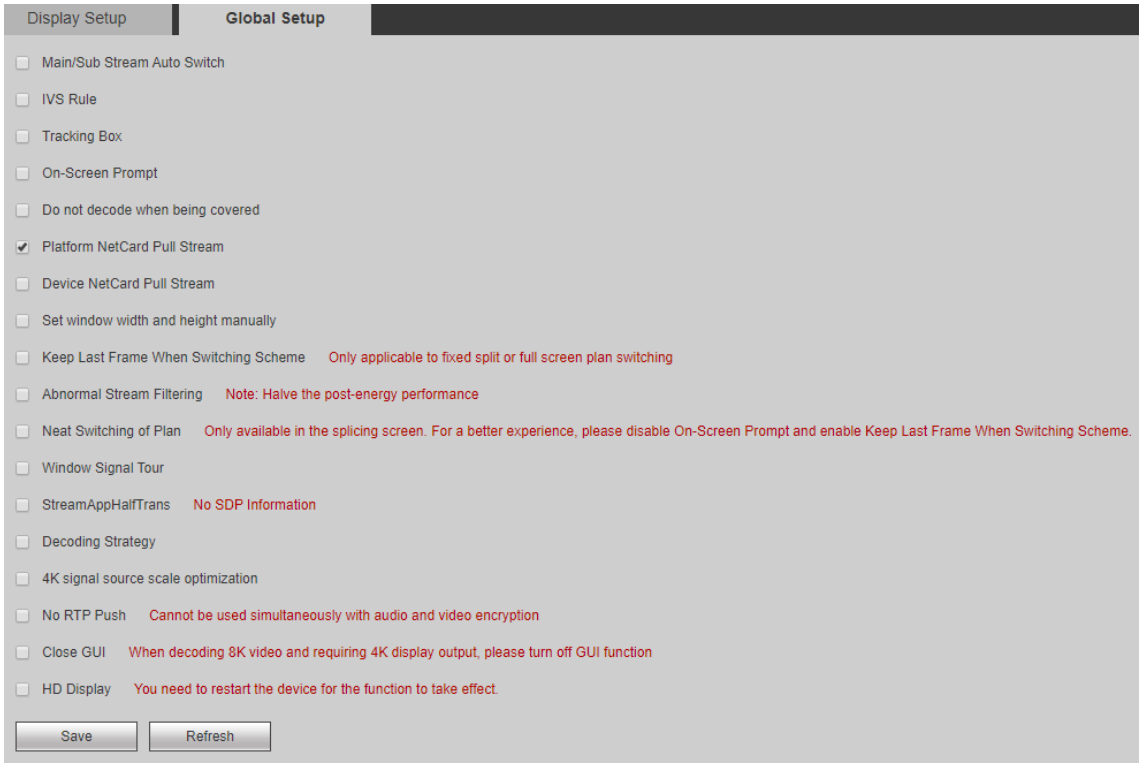


Figure 6-98 6-channel Ultrahigh Definition Series, 6-channel Ultrahigh Definition Series (with 2 Input Ports), 9-channel Ultrahigh Definition Series and 9-channel Ultrahigh Definition Series (with 4 Input Ports global setup

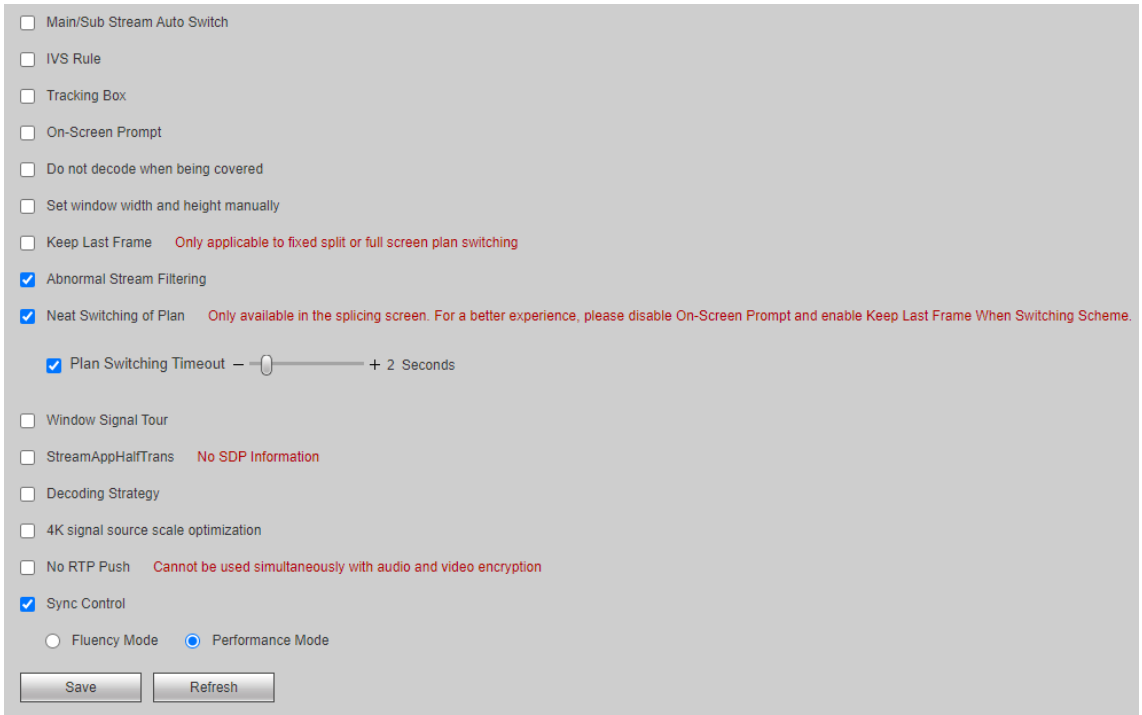


Table 6-23 Global setup parameters description

Parameter	Description
Main/Sub Stream Auto Switch	If main stream is displayed on the window, when the resolution is lower than D1, main stream will automatically switch to sub stream.
IVS Rule	After the camera enables IVS rule function, rule line turns red and flickers if a moving object enters the alarm zone of blue rule line.
Tracking Box	After the camera enables tracking box function, the system selects and tracks moving objects with a green box on the output page.
Window Prompt Info	Prompt information will be displayed on the window.
Do not decode when being covered	The covered window will pause decoding.
Platform NetCard Pull Stream	Enable platform netcard pull stream function.  1-channel 4K high definition series does not support this function.
Device NetCard Pull Stream	Enable device netcard pull stream function.  1-channel 4K high definition series does not support this function.
Set window width and height manually	Double-click window on the video wall to adjust window coordinate and size.
Scheme Switch Keep Last Frame	Keep the last frame when switching schemes to avoid black screen.
Abnormal Stream Filtering	The system checks and filters abnormal stream, to prevent green screen.
Neat Switching of Plan	Plan stream will be switched synchronously and neatly, to enhance visual effect.
Window Signal Tour	Multiple signals can be toured and displayed on a window.
StreamAppHalfTrans	The stream media library does not encapsulate streams but pass streams to devices for decoding.
Decoding Strategy	Select the check box. Fluency adjustment zone is displayed. You can drag the slider to adjust window fluency.  You can only adjust fluency of network signal.
4K signal source scale optimization	Capture and decode 4K signals for image output, which optimizes display performance.

Parameter	Description
No RTP Push	After you enable this function, streams without RTP head can be decoded and displayed on the wall. This function cannot be used together with audio/video encryption.
Close GUI	After you enable this function, output image displays only video image, and screen number virtual LED cannot be used. If you want to display 4K video after decoding 8K video, disable this function.
Power Abnormal Reboot	After you enable this function, the device automatically restarts when MCU detects power exceptions.
HD Display	After you enable this function, the device will enable zoom and needs to restart.

Step 4 Click **Save**.

6.5.5.4 Output Name

Background Information

You can configure output name and control ID of each channel on the board card. Control ID can correspond to the binding source (such as keyboard), so the binding source can be displayed on the video wall.

- Output name is only used to distinguish channels.
- Select output screens through control ID, and you can configure video wall display of keyboard or other devices.

Procedure

Step 1 Select **Setup** > **Display Management** > **Output Name**.

Figure 6-99 Output name (1)

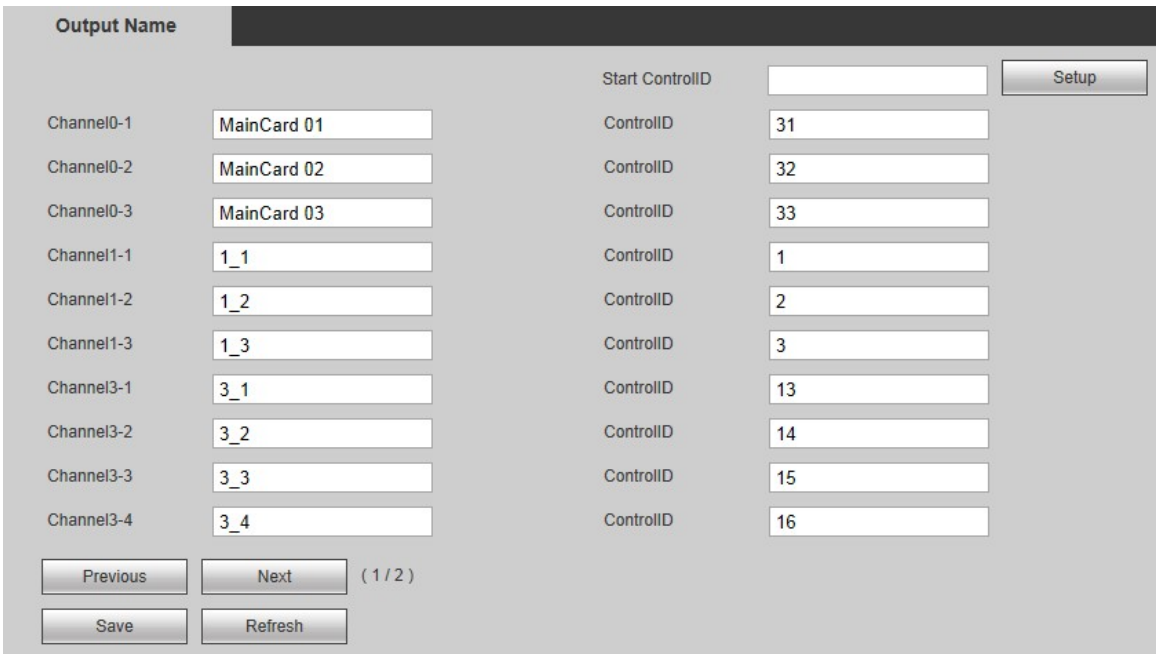
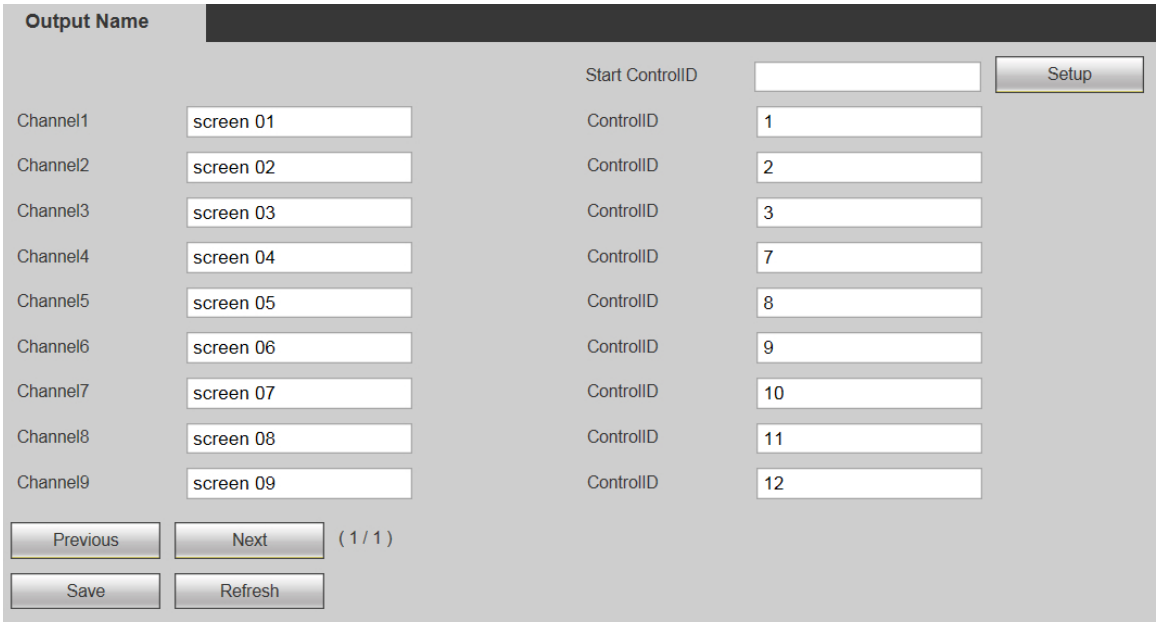


Figure 6-100 Output name (2)



1-channel 4K high definition series, 4-channel 8K ultrahigh definition series, 6-channel 4K high definition (with 4 input ports) series and 9-channel 4K high definition (with 4 input ports) series are displayed in Figure 6-100 . For other models, refer to Figure 6-99 .

Step 2 Configure output name and control ID for each channel.

Enter **Start ControlID** and click **Setup**, so control ID of channels will start from the **Start ControlID**.

Step 3 Click **Save**.

6.5.5.5 Structured Information

Background Information

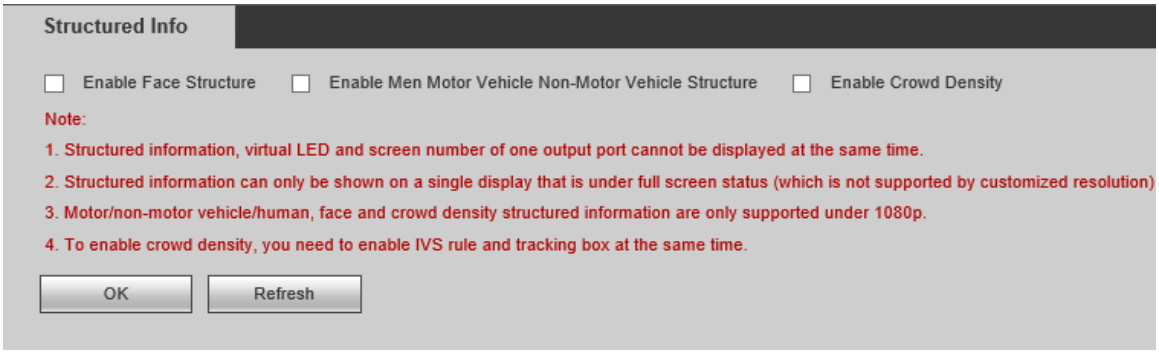
Receive structured data info about face, motor vehicle, non-motor vehicle and crowd density, and then display the data on the video wall.

- Face structure: After camera enables face function and video matrix platform enables face structure function, the camera collects video stream and detects face info in the stream. The face info can be displayed on the screen through video matrix platform.
- Human, motor vehicle and non-motor vehicle structure: After camera enables human, motor vehicle and non-motor vehicle recognition function and video matrix platform enables human, motor vehicle and non-motor vehicle structure function, the camera collects video stream and detects human, motor vehicle and non-motor vehicle info in the stream. The human, motor vehicle and non-motor vehicle info can be displayed on the screen through video matrix platform.
- Crowd density: After camera enables crowd density recognition function and video matrix platform enables crowd density structure function, the camera collects video stream and detects crowd density info in the stream. The video stream can be displayed on the screen through video matrix platform. Crowd density is indicated with blue spots. The denser blue spots become, the higher crowd density will be.

Procedure

Step 1 Select **Setup** > **Display Management** > **Structured Info**.

Figure 6-101 Structured info



Step 2 Select the structure info you want.

Step 3 Click **OK**.

6.6 Information

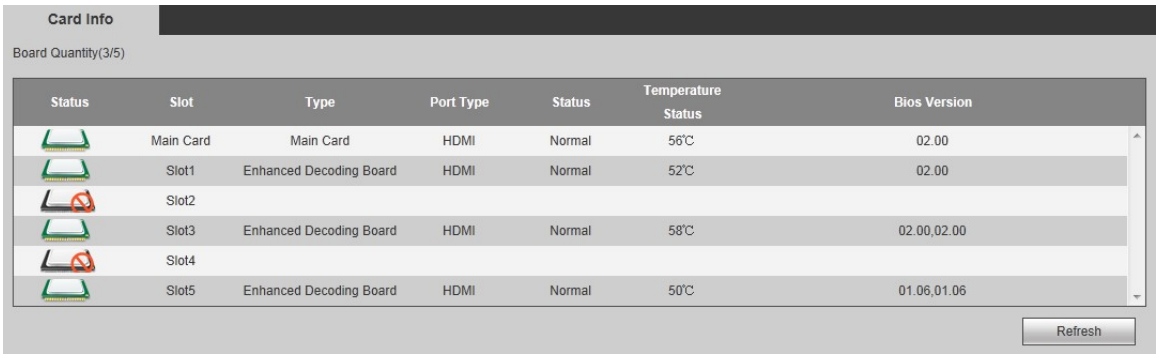
You can view device info, including card info, decode info, device info, system status, system log and online user.

6.6.1 Card Information

Select **Info > Device Info > Card Info**, and you can view card status, type, port type and temperature status of the network video decoder.

- : This slot has a card.
- : This slot does not have a card.

Figure 6-102 Card information



6.6.2 Gather Information

Select **Info** > **Device Info** > **Gather Info**, and you can view the information output by the computer graphics card to the encoder to determine whether the video signal acquisition parameters are correct.

Only NVD0405DU-2I-8K, NVD0805DU-2I-8K, NVD1205DU-2I-8K, NVD1205DU-4I-8K NVD1605DU-2I-8K-2H, NVD1605DU-4I-8K-2U2H, NVD2005DU-2I-8K-2H, NVD2005DU-4I-8K-4H, NVD2005DU-8I-8K-8H support the function.

6.6.3 Decode Information

Select **Info** > **Device Info** > **Decode Info**, and you can view decoding status, resolution, FPS, data flow and decode flow of the decoding channel.

Figure 6-103 Decode information

6.6.4 Device Information

6.6.4.1 Configuring Device Information

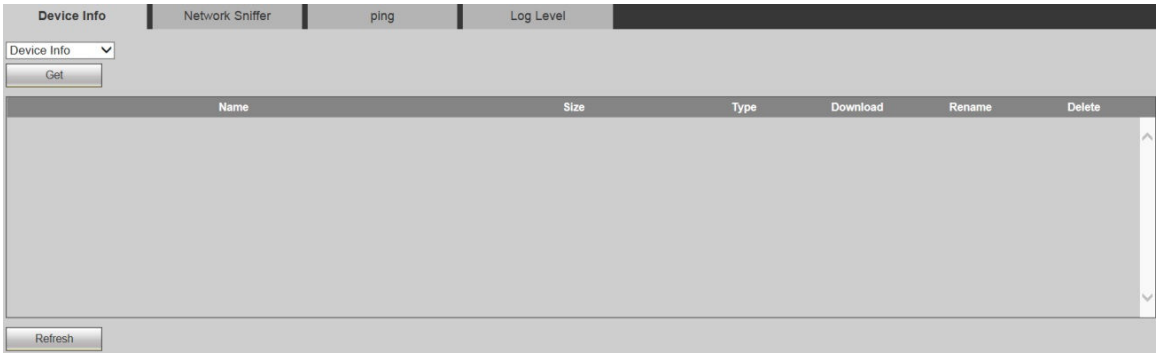
Background Information

You can view device information and card log of network video decoder.

Procedure

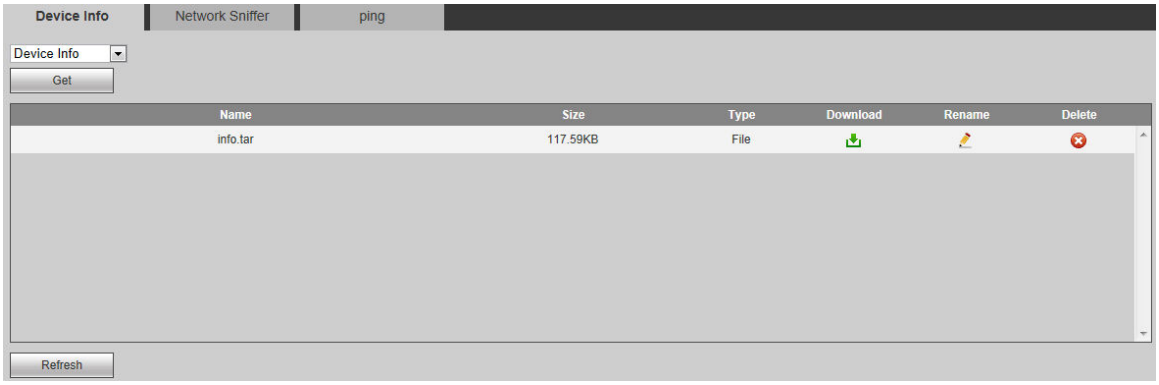
Step 1 Select **Info** > **Device Info** > **Device Info**.

Figure 6-104 Device information



Step 2 Select **Device Info** or **Card Log**, and click **Get**.

Figure 6-105 Get device info or card log



- Click to download information file or card log of the device.
- Click to rename the information file or card log of the device.
- Click to delete records on the information file or card log page. If you delete it by mistake, you can get it again.

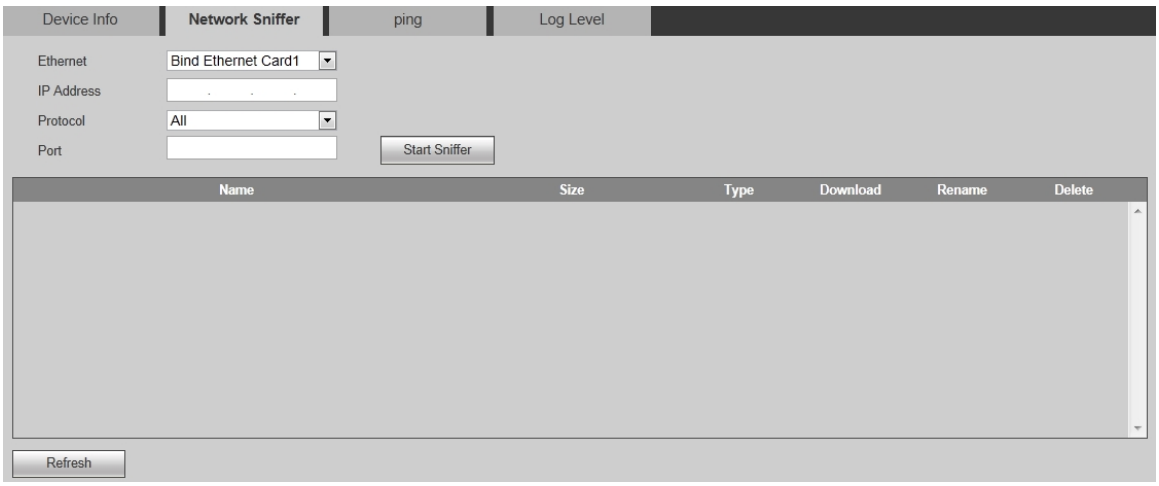
6.6.4.2 Network Sniffer

Network sniffer is to intercept, resend, edit and transfer the data received and sent through network, so as to inspect network security.

In case of network error, you can carry out sniffer operation on this page, download the sniffer file to local device, and provide it to technicians to analyze network status.

Step 1 Select **Info** > **Device Info** > **Device Info** > **Network Sniffer**.

Figure 6-106 Network sniffer



Step 2 Configure the parameters.

Table 6-24 Network sniffer parameter description

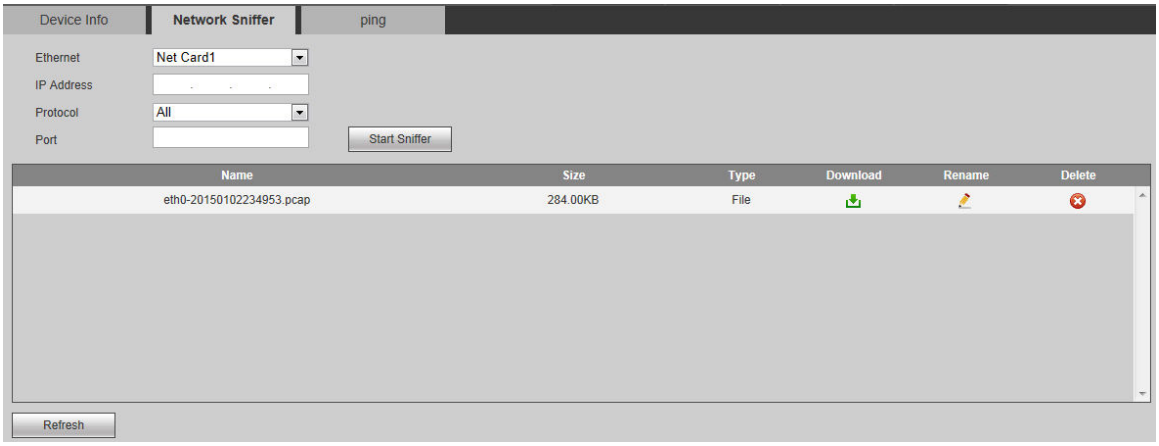
Parameter	Description
Ethernet	Select the net card that has been bound.
IP Address	Set network IP address.

Parameter	Description
Protocol	Select network protocol, including All, TCP and UDP.
Port	Set network port.

Step 3 Click **Start Sniffer**.

Step 4 After a while, click **Stop Sniffer**.

Figure 6-107 Data packet



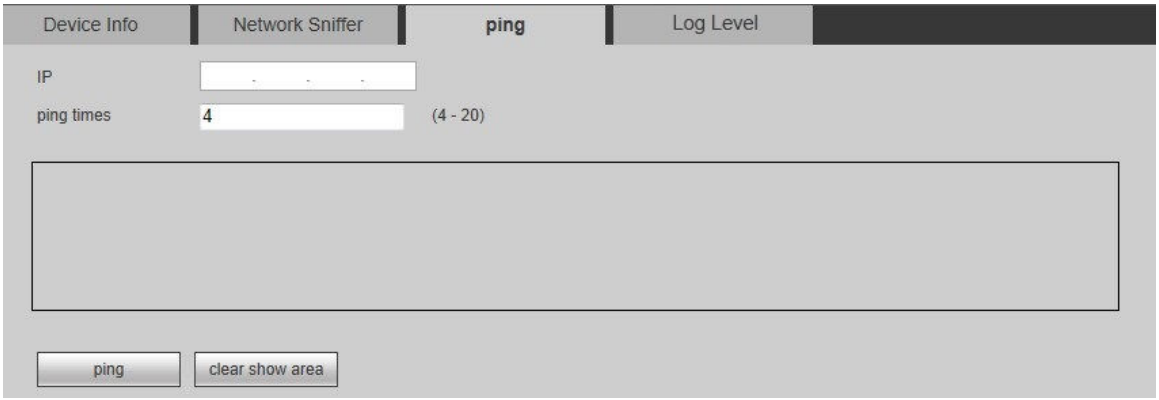
- Click to download this sniffer file.
- Click to rename this sniffer file.
- Click to delete this sniffer file.

6.6.4.3 Ping

With the ping command, check whether camera or network video decoder is connected normally.

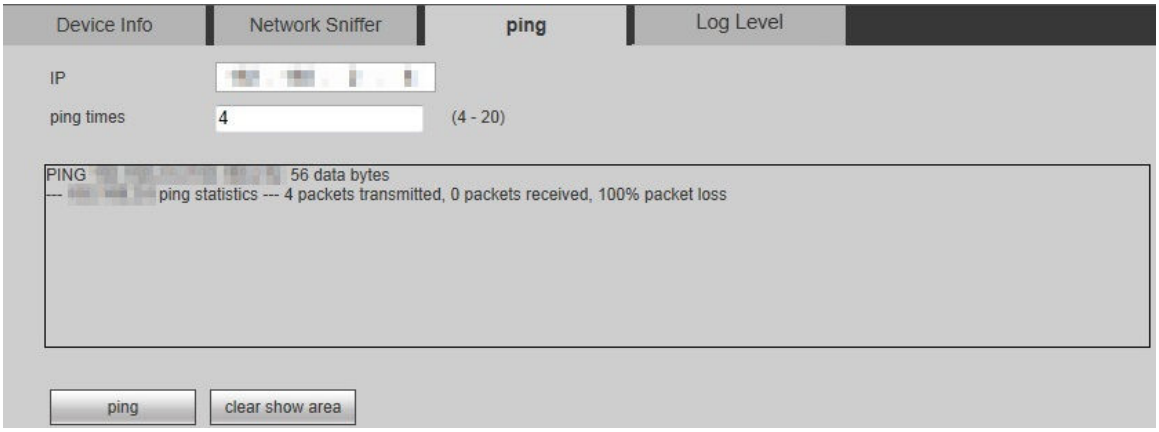
Step 1 Select **Info** > **Device Info** > **Device Info** > **Ping**.

Figure 6-108 Ping



Step 2 Enter the IP address and ping times, and click **Ping**.

Figure 6-109 Information display



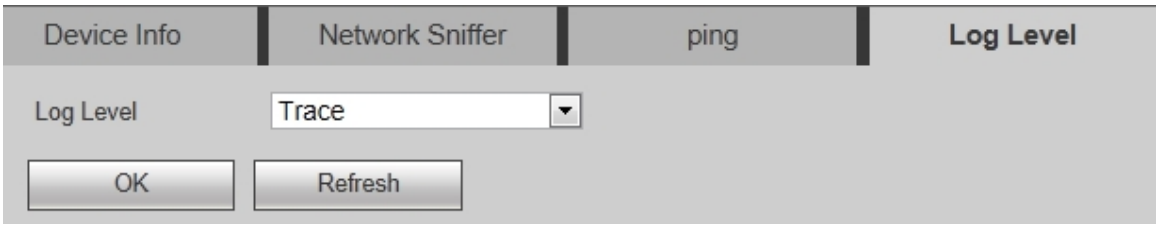
When ping function is enabled, you can open only one web client. Otherwise, ping information might not be displayed completely.

6.6.4.4 Log Level

Configure background printing debugging log level.

Step 1 Select **Info** > **Device Info** > **Device Info** > **Log Level**.

Figure 6-110 Log level



Step 2 Configure log level.

Step 3 Click **OK**.

6.6.5 System Status

You can view network status, fan status, power status, CPU status and memory status of the network video decoder.

Select **Info** > **Device Info** > **System Status**.

Figure 6-111 System status (1)

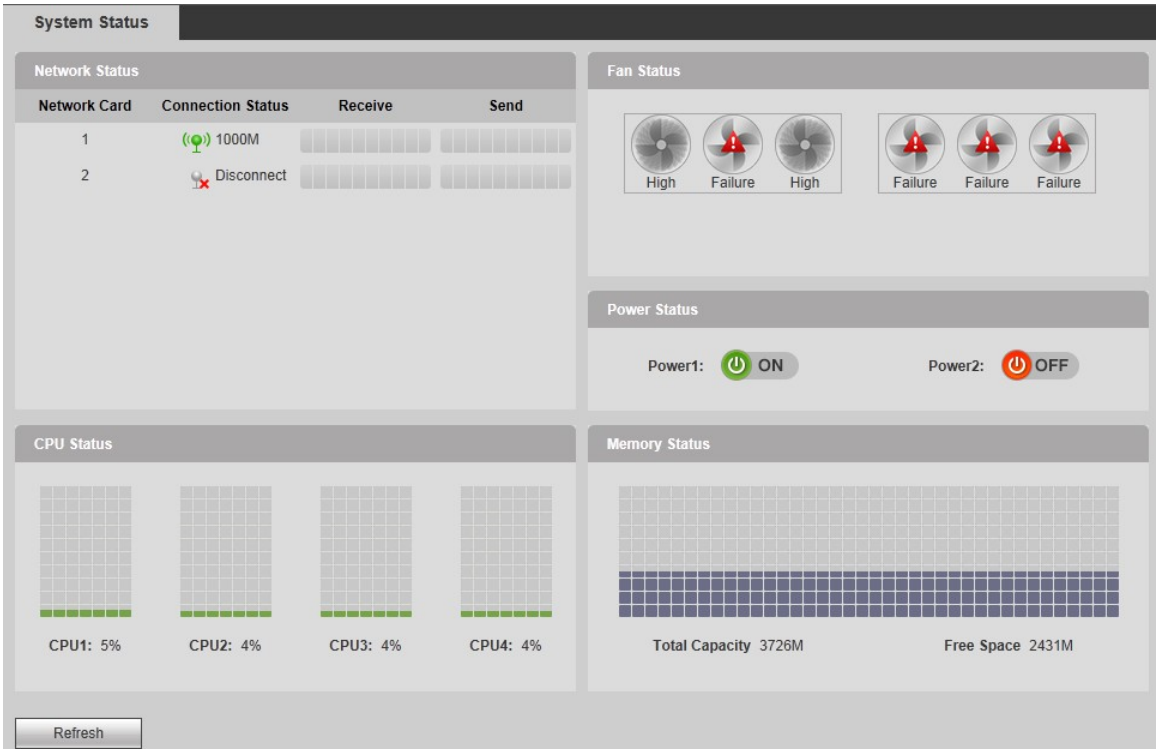
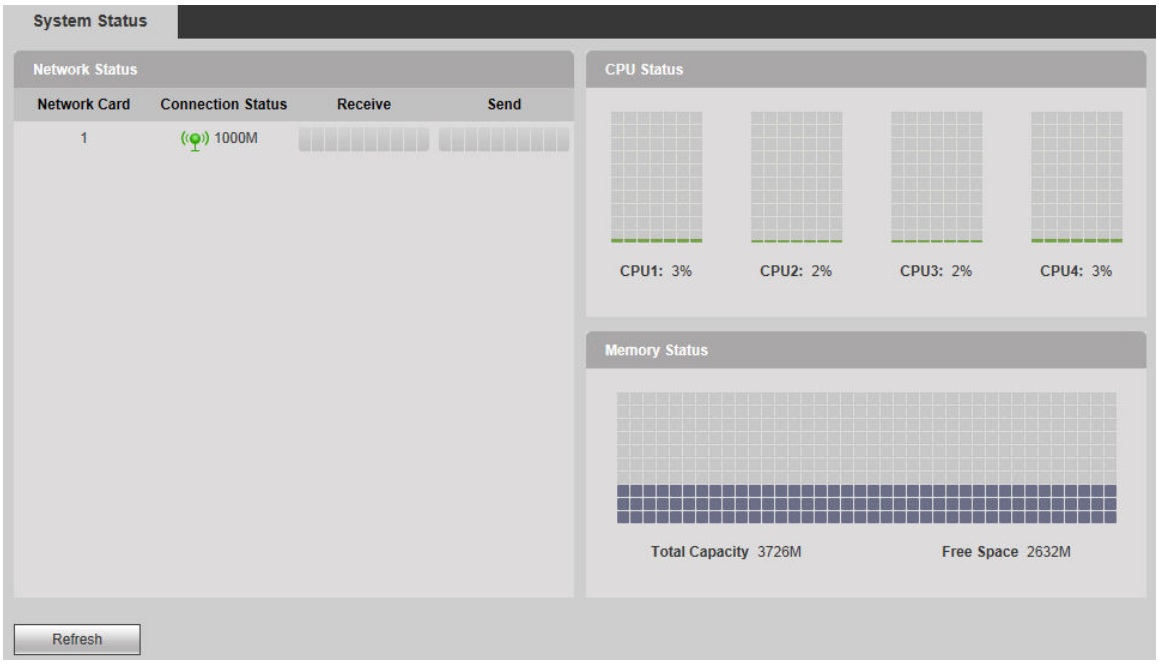


Figure 6-112 System status (2)



The page of 1-channel 4K high definition series, 6-channel 4K high definition with 4 input ports) series and 9-channel 4K high definition (with 4 input ports) series is displayed in Figure 6-112 . For other models, see Figure 6-111 .

- Network status: Display connection status, data receiving and sending of network card.
- CPU status: Display CPU status of all inserted board cards.
- Fan status: Display fan status.

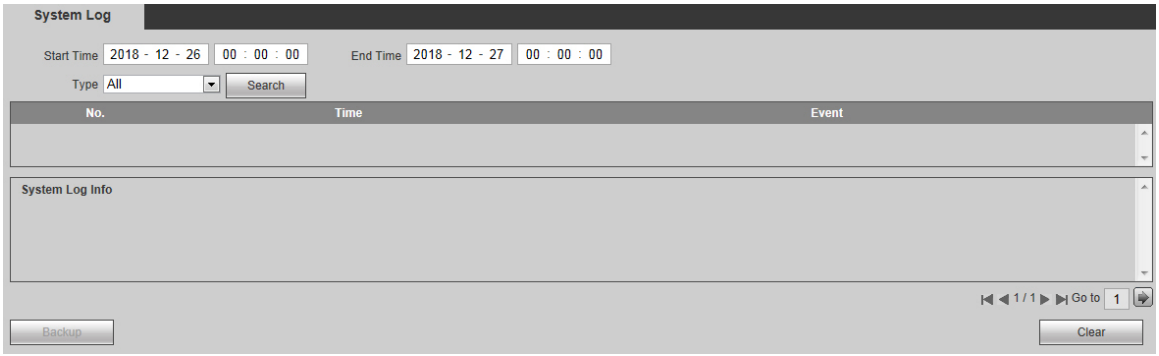
- Power status: Display status of two power supplies.
- Memory status: Display memory status.

6.6.6 System Log

You can search for and view system log information about network video decoder according to time and log type, and backup the log to local computer.

Step 1 Select **Info** > **Device Info** > **System Log**.

Figure 6-113 System log



Step 2 Configure **Start Time** , **End Time** and **Type**, and then click **Search**.

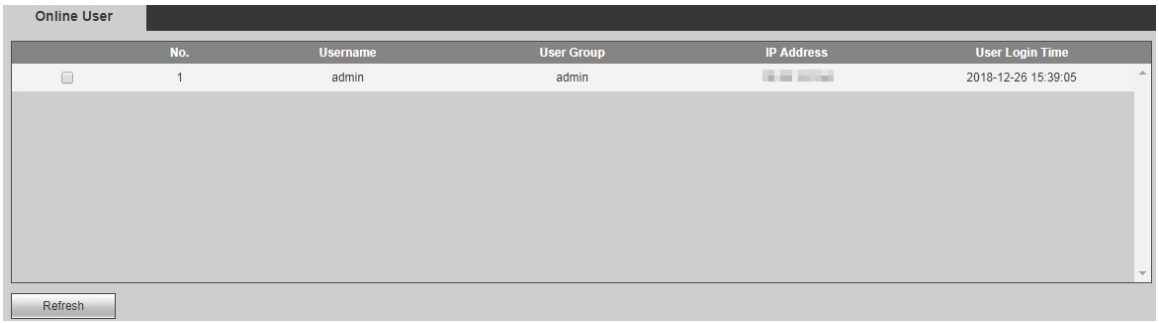
- Click the log to show details.
- Click **Clear** to clear all log information of the device. Log information cannot be cleared according to types.
- Click **Backup** to back up the searched system log information to the PC under use.

6.6.7 Online User

You can view online users' usernames, groups, IP addresses and other basic information.

Select **Info** > **Device Info** > **Online User**.

Figure 6-114 Online user



6.6.8 About

Select **Info** > **Device Info** > **About**, and you can view version information about this device.

6.6.9 Legal Information

Select **Info** > **Device Info** > **Legal Info**, and you can view the open source software notice.

7 Connecting to Third-party Central Control Devices

The Device can connect to a third-party central control device, enabling functions such as displaying video streams on video walls, PTZ control, and scheme switching by accessing monitors and cameras.

7.1 Serial Lines Production

- If the serial port of the device is a standard RS-232 DB9-pin serial port, choose an RJ45 network cable configured with a T568B wiring standard, along with an RS-232 serial port cable.

Figure 7-1 RJ45 network cable configured with a T568B wiring standard

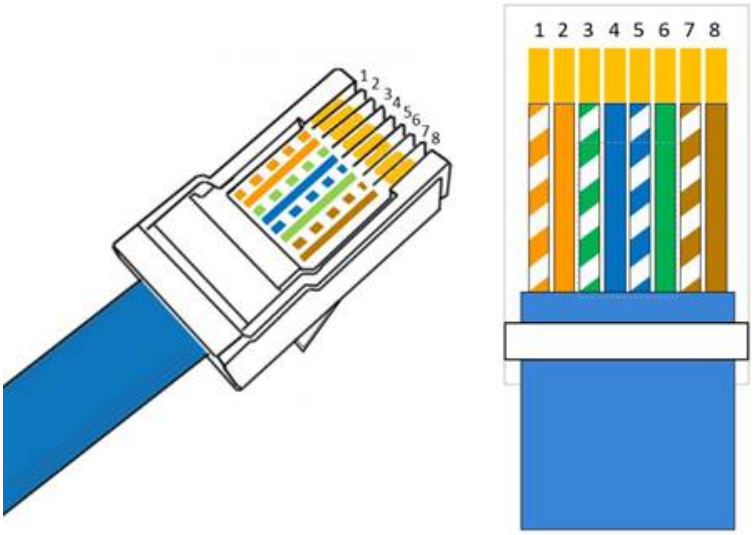


Figure 7-2 RS-232 DB9-pin definition

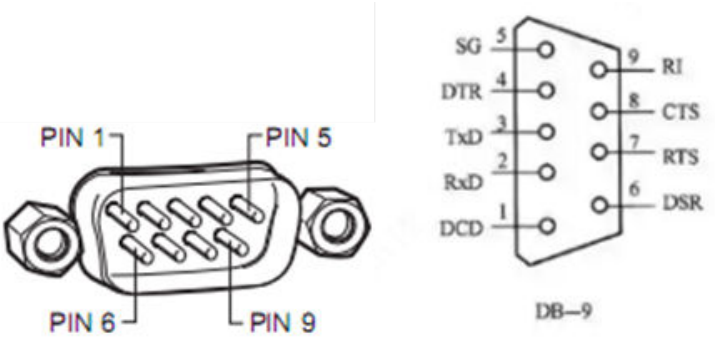
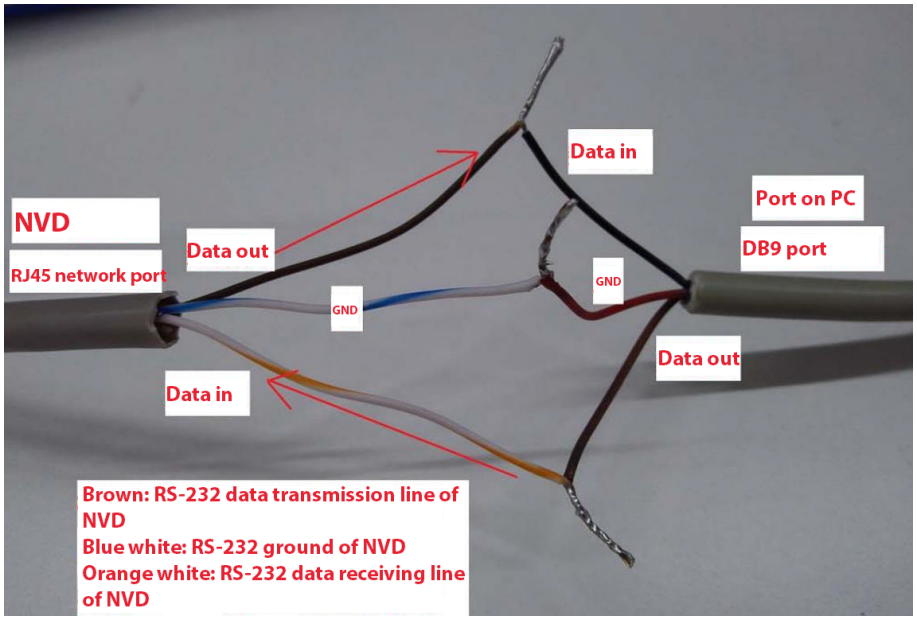


Table 7-1 Matching between the network cable and RS-232

NVD	RJ45	RS-232	Center control device
RXD	1 orange white	3	TXD
GND	5 blue white	5	GND
TXD	8 brown	2	RXD

Figure 7-3 Wiring



If the signal does not function according to the above method, please swap TXD and RXD, and then try again.

- If the serial port of the device is not a DB9-pin standard serial port, please make sure that the data transmission line is connected to the receiving line of the device, the data receiving line is connected to the transmission line of the device, and the ground is connected to that of the device based on the actual situation.

Figure 7-4 RS-232 ports

7.2 Configuring Ports

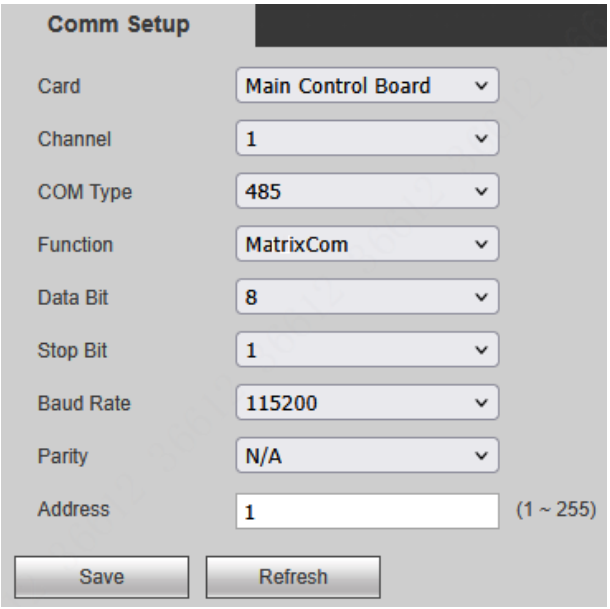
Procedure

Step 1 On the webpage, select **Setup** > **System Config** > **Comm Setup**.

Step 2 Select the corresponding card and channel. Select 232 as the **COM Type** and MatrixCom as the **Function**.

Step 3 Keep the other parameters the same as those of the device.

Figure 7-5 Ports configuration



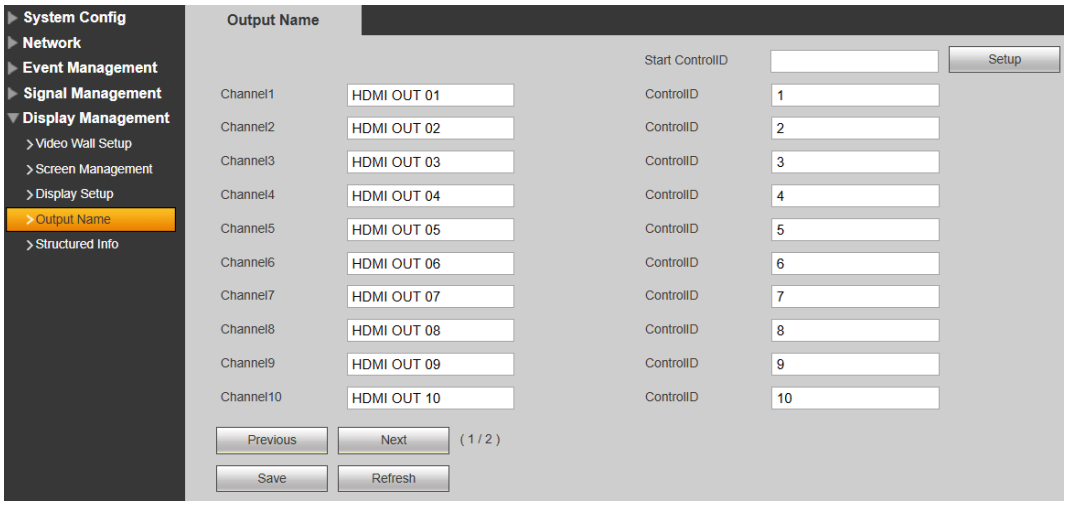
7.3 Displaying Streams on the Video Wall

The signal is displayed on the video wall by issuing control commands on the central control device.

Procedure

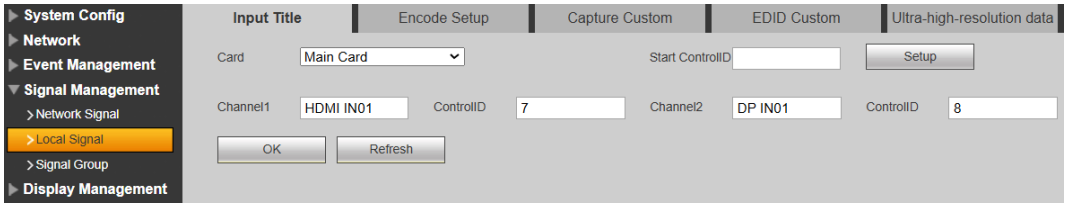
Step 1 Check the screen control ID on the webpage: Select **Setup** > **Display Management** > **Output Name**

Figure 7-6 Checking screen control ID



Step 2 Check the control ID of the local signals on the webpage: Select **Setup** > **Signal Management** > **Local Signal** > **Input Title**.

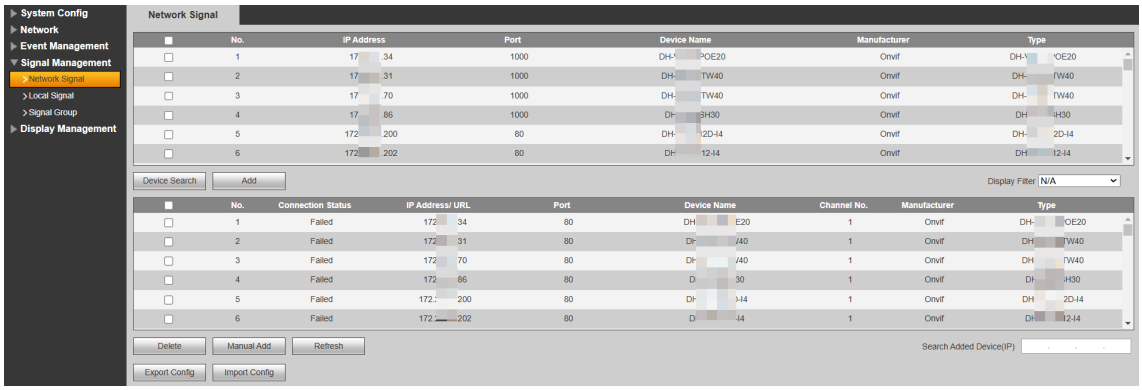
Figure 7-7 Checking the control ID of local signals



Step 3 Check the control ID of the network signals on the webpage.

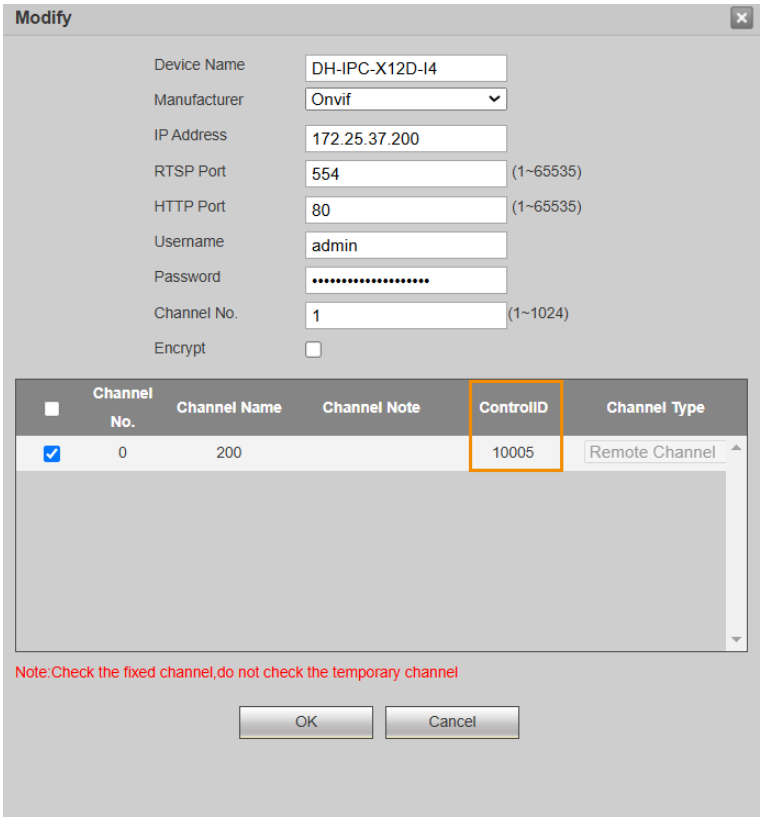
1. Select **Setup** > **Signal Management** > **Network Signal**.

Figure 7-8 Checking network signals



2. Double-click the device in the list and check its control ID in the pop-up window.

Figure 7-9 Checking the control ID of network signals



Step 4 Enter the control command on the central control device, for example **7Ma99#a**, which means that the input source with control ID 99 is connected to the screen with control ID 7.

7.4 PTZ Control

You can adjust the PTZ of cameras by issuing control commands on the central control device.

Prerequisites

Enable PTZ control function.

Procedure

Step 1 Check the screen control ID.

Step 2 Check the control IDs of local signals or network signals of the PTZ camera.

Step 3 Enter the control command on the central control device, for example **8Ma47#aOa5Ra**, which means that the input source with control ID 47 is connected to the screen with control ID 8 with a step length of 5.

7.5 Switching Between Schemes

Switch between schemes by issuing control commands on the central control device.

Prerequisites

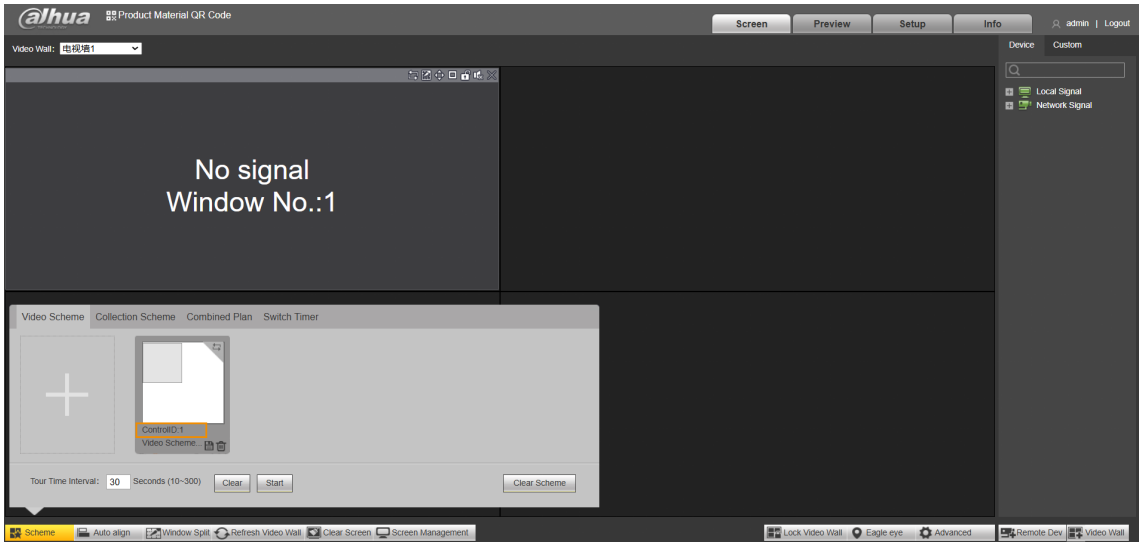
Configure video schemes on the webpage. For details, see "6.3.4.2 Scheme Management".

Procedure

Step 1 Check the control ID of schemes: Select **Screen** > **Scheme**.

Step 2 Enter the control command on the central control device, for example **1Pa**, which means displaying the video scheme with control ID 1.

Figure 7-10 Checking the control ID of schemes



8 Alarm Input/Output Device

Before device connection, pay attention to the following points:

- Alarm Input

Confirm alarm type of alarm input device, and then match alarm type at network end of decoder (for example, in case of grounding alarm, the decoder shall be normally open; otherwise, it shall be normally closed).

Alarm input is effective in case of low electrical level, so the device can be grounded.

If the alarm device is connected to 2 decoders, or one decoder and other devices, use a relay for isolation.

- Alarm Output

The alarm output port of decoder cannot be connected to high-power load (less than 1A). When constructing the output circuit, the excessive current should be prevented from causing damage to the relay. Use a circuit breaker for isolation when applying high-power loads.

- Pay attention to grounding of camera, since poor grounding might lead to chip damage.

Alarm input type can be NO (normal open) or NC (normal close).

8.1 Alarm Port

Figure 8-1 Diagram of alarm port

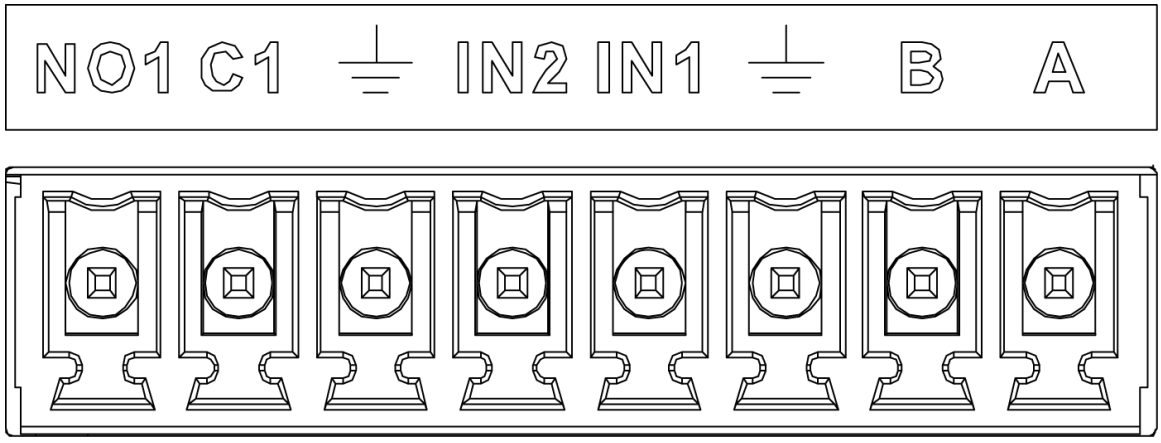


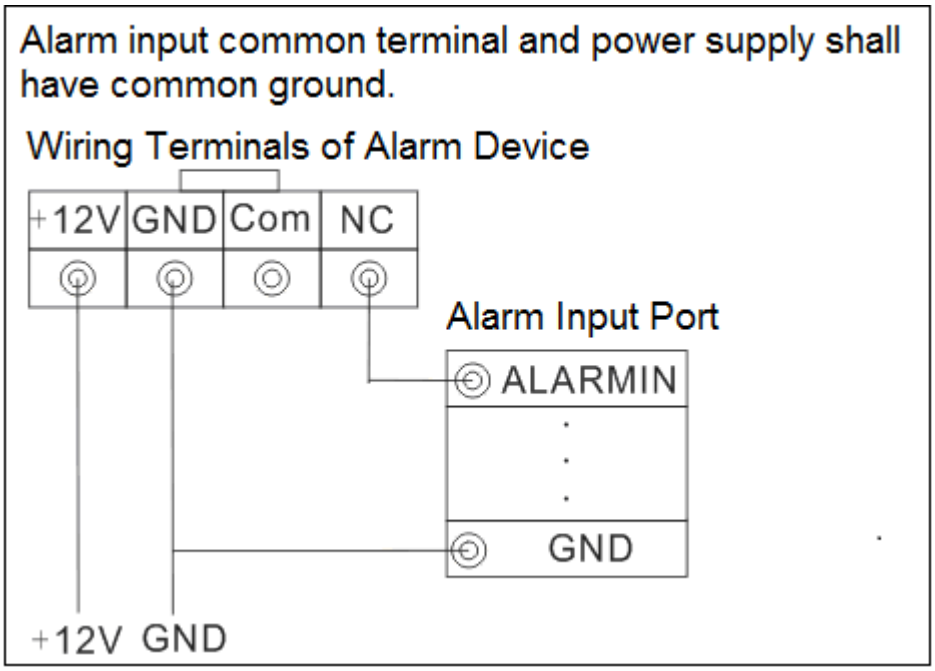
Table 8-1 Alarm port introduction

Parameter	Description
A, B	Control A and B cables of RS-485 device
⏚	Ground line port
IN1, IN2	Alarm input port
NO1; C1	Alarm output port (NO type)

8.2 Alarm Input Port

- 16-channal alarm input, which can be NO or NC.
- Connect the NC port of alarm detector to alarm input port (ALARM) of decoder.
- When supplying power from external power source to the alarm device, the alarm device should be common-grounded with decoder.

Figure 8-2 Diagram of alarm input



8.3 Alarm Output Port

- It is 8-channel switching volume alarm output (normally open contact), and there should be additional power supply to external alarm device.
- To avoid overload to damage the Device, please refer to relay parameters. See "5.4 Relay Parameters of Alarm Output Port."
- RS–485 A line and B line are used for connecting the line A and line B on the PTZ decoder.

Figure 8-3 Diagram of alarm input port module

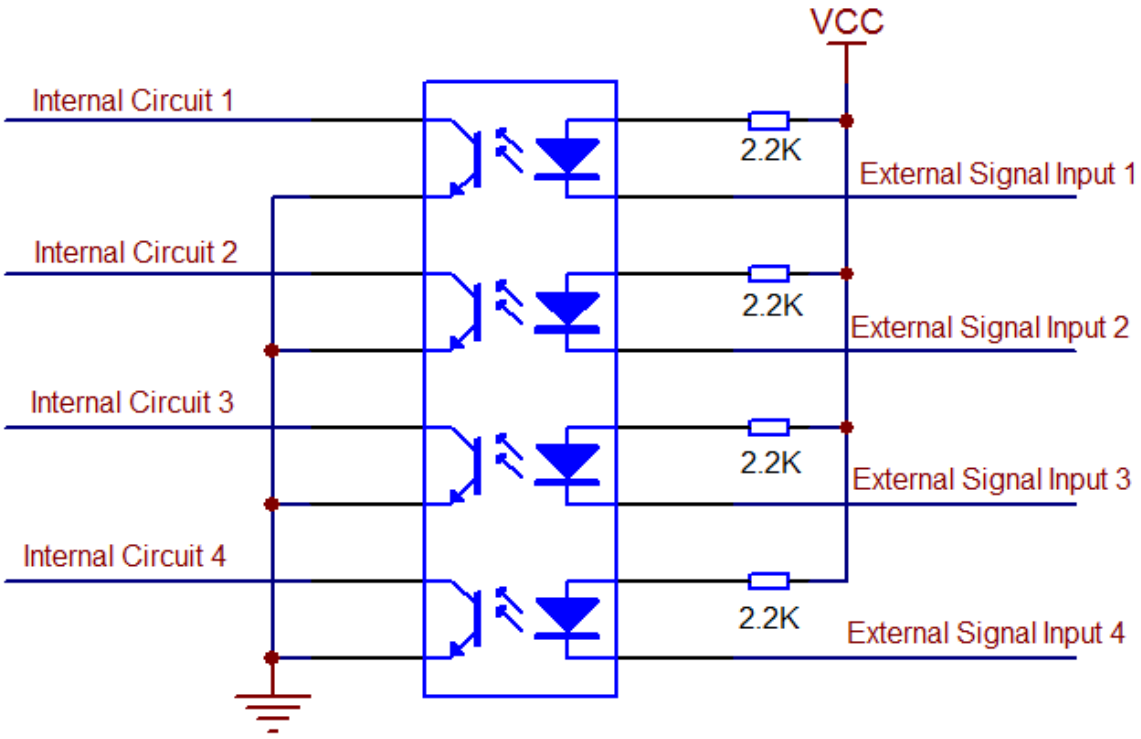
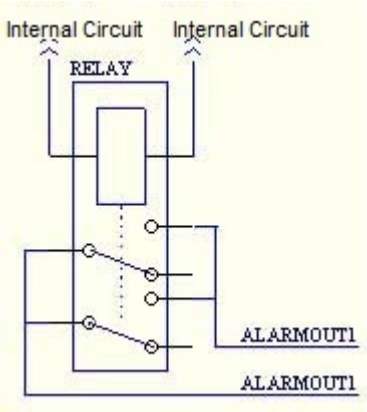


Figure 8-4 Diagram of alarm output port module



8.4 Relay Parameters of Alarm Output Port

Table 8-2 Contact parameter

Parameter	Value
Contact type	1Z
Contact resistance	100 mΩ (DC6V 0.1A)
Contact material	AgNi + Gold plated
Contact load (resistive)	AC125V 0.5A/DC 30V 1A
Maximum switching voltage	AC 125V/DC 60V

Parameter	Value
Maximum switching current	2A
Maximum switching power	62.5 VA/30 W
Minimum allowable load	1 mA 5V
Mechanical durability	1X107 times (300 times/min)
Electrical durability	1X105 times (30 times/min)

9 Center Visualization Control System

You can add devices to the center visualization control system for management. For details, see the user's manual of the center visualization control system.

Appendix 1 Description of Matrix Serial Port Control Protocol

Appendix Table 1-1Description of matrix serial port control protocols

Quick control	Control command	Description
Select the screen ID	1Ma	1 means the ID of screen to be switched. The value ranges from 1 to 999.
Specify the window ID	1Xa	1 means the window ID on the screen.
Select the camera ID	1#a	1 means the ID of camera or local channel to be switched. The value ranges from 1 to 99999999.
Camera preset point	1^a: preset 1\a: call	1 means the preset or called points of the camera. The value ranges from 1 to 999.
Tilt the PTZ camera upwards	0-6Ua	0-6 means the speed level, 0 means the fastest and 6 the slowest. The command is continuous.
Tilt the PTZ camera downwards	0-6Da	0-6 means the speed level, 0 means the fastest and 6 the slowest. The command is continuous.
Rotate the PTZ camera to left	0-6La	0-6 means the speed level, 0 means the fastest and 6 the slowest. The command is continuous.
Rotate the PTZ camera to right	0-6Ra	0-6 means the speed level, 0 means the fastest and 6 the slowest. The command is continuous.
Enlarge the aperture of the PTZ camera	Wa	The command is continuous.
Reduce the aperture of the PTZ camera	Ta	The command is continuous.
Zoom in the PTZ camera	Na	The command is continuous.
Zoom out the PTZ camera	Fa	The command is continuous.
Close the control of the PTZ camera	Ca	The command is continuous.
Open the control of the PTZ camera	Oa	The command is continuous.
Call the scheme	1Pa	1 means scheme ID. The value ranges from 1 to 999.
Turn on the screen	Ka	The command is continuous.
Turn off the screen	Ga	The command is continuous.
Turn on the designated screen	1Ka	1 means screen ID to be switched. The value ranges from 1 to 999.

Quick control	Control command	Description
Turn off the designated screen	1Ga	1 means screen ID to be switched. The value ranges from 1 to 999.
Type of stream	Ea	5 means raw data (specific to local signals), 0 means main stream and 1 means sub stream. Main stream is set as default.

Appendix Table 1-2Demonstration examples of serial port control protocols

Example	Control command
Display video streams of camera with an ID of 99 on screen with an ID of 7	7Ma99#a
Call the scheme with an ID of 10	10Pa
Display video streams of PTZ camera with an ID of 47 on screen with an ID of 8 and rotate the camera to right	8Ma47#a5Ra
Display video streams of PTZ camera with an ID of 47 on screen with an ID of 8 and enlarge the aperture of the camera	8Ma47#aWa
Rotate the PTZ camera designated to right on screen with an ID of 8	8Ma5Ra
Turn on all the screens	Ka
Turn off the screen with an ID of 5	5Ga
Display video streams of camera with an ID of 2 on window with an ID of 1 on the screen with an ID of 1	1Ma1Xa2#a

Appendix 2 Cybersecurity Recommendations

Mandatory actions to be taken for basic device network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters.
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols.
   - Do not contain the account name or the account name in reverse order.
   - Do not use continuous characters, such as 123, abc, etc.
   - Do not use overlapped characters, such as 111, aaa, etc.

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers between 1024–65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

   We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

   If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

   If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

   - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
   - SMTP: Choose TLS to access mailbox server.
   - FTP: Choose SFTP, and set up strong passwords.
   - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. **Audio and Video Encrypted Transmission**

    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

    Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

    Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. **Construct a Safe Network Environment**

    In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
    - The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
    - Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
    - Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.